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THE SELECTION OF PATIENTS FOR MITRAL VALVOTOMY

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Cape Town

World-wide experience during the last 5 years has established valvotomy as a procedure for the treatment of mitral stenosis. The operative mortality is low and in 3 out of 4 selected cases the results are good. The outlook for the sufferer has been radically altered by the development of this branch of surgery and its benefits should not be withheld from suitable cases.

Though many patients survive until late middle-age a study of the natural history of mitral stenosis reveals the poor prognosis once disability commences. Paul Wood's observations [1] show that 60% of patients give a history of previous rheumatic fever, and that on the average symptoms develop 15 years afterwards. These are of a mild nature for 2½ years, but 4 or 5 years later most victims are seriously incapacitated. Other equally emphatic statistics show that the majority of patients die within 7 years of the onset of moderately severe symptoms. These figures explain why surgical clinics in Britain and America are almost overwhelmed by the numbers seeking relief.

Some patients have little or no disability; others are symptomless and unsuspected, being found by chance during examination for other purposes. For these valvotomy is not advised. At the opposite end of the scale there are those whose state is so parlous that the operative mortality would be prohibitive. But in all other cases the question of operation should at least be thought about, and the pros and cons properly considered. Therefore, the object of this article is to discuss in a full and simple manner the indications and contra-indications for valvotomy.

Basically the pathology of stenosis is that of cardiac obstruction with characteristic effects apparent proximally in the pulmonary circulation. The similarity to obstruction in the urinary bladder and intestinal tract is close. The fibrous tissue formed in and around the valve-cusps and chordae tendineae during the phase of carditis contracts over a period of years until the orifice is reduced to an opening measuring about 1 cm. x 0.5 cm. By then the typical symptoms may have been present for some time. Further narrowing occurs by the deposition of fibrin on the edges of the orifice, and although the initial compensatory powers of myocardial hypertrophy are impressive, deterioration eventually occurs. Once this has commenced it is illogical to maintain the patient on a conservative regimen of digitalis, restricted activity, limited fluid intake and mercurial diuretics while irreversible destructive changes are occurring in the myocardium and elsewhere. These are inevitable if the valvular obstruction is not relieved. Yet to-day relief is readily available and successful operation opens a new outlook on life, provides freedom from constant fear and oppressive and irksome restrictions, and enables patients to earn a living, lead a normal married life and bear children in safety.

It is convenient to classify cases into 4 groups. The 2 for whom operation is not advised have already been mentioned. The remaining groups comprise the majority of patients, who can be divided into those who are ideal surgically, and those whose complications or unfavourable features merit special consideration.

IDEAL CASES

Most patients in this category are aged between 20 and 40 years. At rest they may appear normal but walking uphill or upstairs brings on undue dyspnoea. They cannot hurry or engage in strenuous activity, and in pastimes they fail to keep up with their friends. Their daily occupation becomes a strain. Exertion or emotion may induce a feeling of tightness across the chest, with a slight cough and occasional haemoptysis. At night they need more than the usual number of pillows to prevent orthopnoea, and if they slip down the bed they may have an attack of paroxysmal dyspnoea. These symptoms are evidence of pulmonary congestion, and moist sounds, if not already present, can readily be produced by exercise.

The heart-rate is usually regular. Most have a presystolic or mid-diastolic murmur with an abrupt first sound and an accentuated second sound in the pulmonary area. Radiology shows the increased vascularity of the lung fields, and usually a slight enlargement of the left atrium and auricular appendage. With increasing pulmonary hypertension enlargement of the right ventricle and pul-

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monary artery occurs. Until then the electrocardiograms may be quite normal.

The over-all picture is that of a moderately severe stenosis with a well-compensated myocardium. However, sooner or later deterioration commences, with progressive dyspnoea, increasing orthnopnoea and cardiac asthma, and larger and more frequent haemoptysis. Pulmonary hypertension and oedema, auricular fibrillation and its sequelae, and myocardial failure, eventually develop. Despite medical treatment the majority of patients suffer exacerbations and die within 7 years. Therefore, provided there are no contra-indications, operation should always be advised for this type of case, for it is folly to deprive these patients of relief and prolongation of life.

CARDIAC CATHETERIZATION

The decision to operate or not can be made from a consideration of the patient's history and the findings of routine physical, electrocardiographic and radiological examination. In the great majority of cases cardiac catheterization is not essential and its findings rarely influence the decision. But it may be decisive in cases with minimal symptoms. In these cases changes in pulmonary artery pressure and blood-flow through the lungs can be studied at rest and on exercise. When a healthy person is exercised the cardiac output is about doubled yet the pulmonary arterial pressure does not alter. However, if there is a significant degree of mitral stenosis little increase in the cardiac output is possible during exercise, but a rapid and large rise in pulmonary pressure occurs owing to the obstruction at the mitral orifice. If these changes are found in a patient with minimal symptoms valvotomy should be advised because of the high probability of an early deterioration and the danger of acute pulmonary oedema.

COMPLICATED CASES

Patients who have sustained greater damage from carditis or who are in a later stage of the disease tend to have one or more unfavourable features which may influence the decision to operate. Most have had recurrent attacks of pulmonary oedema as a first complication, or, if not, they are perpetually on the brink of this danger until myocardial deterioration commences. Thereafter auricular fibrillation is a common feature, but worse cases may have episodes of congestive cardiac failure. Despite this, good results are achieved by valvotomy in a high proportion of the better cases in this group, and even the worst should not be denied the benefit of a considered surgical opinion. The salvage rate is good, and many are not fit for any operation except one on the heart.

In deciding whether to perform valvotomy or not each complication should first be assessed. The worst may contra-indicate immediate operation, but suitable medical treatment may alter the picture for the better. Therefore the influence of each on the selection will be discussed separately.

(1) *Recurrent Pulmonary Oedema.* Congestion in the pulmonary capillaries induces a compensatory hypertension in the pulmonary artery. Relaxation of a protective vasoconstriction ultimately alters the mechanics of lymph formation and absorption in the capillaries and floods the extravascular spaces and lung alveoli. The results are often dramatic and threaten to drown the patient in his own fluids. Thus acute pulmonary oedema is the most common cause of death of patients awaiting admission for operation in hospitals with long waiting lists. Prompt action may be necessary to save life (Baker, Brock, Campbell and Wood [2]), and recurrent attacks are an indication for urgent operation. Though pulmonary oedema is always a threat to life, these patients with hypertension have a good myocardium and results after valvotomy are frequently excellent.

(2) *Auricular Fibrillation.* This indicates a later stage of the disease or greater myocardial damage and is present in about half the cases submitted to valvotomy. Thrombi may form in the left auricular appendage and give rise to emboli, frequently with fatal results from lodgment in cerebral vessels. Valvotomy performed at the onset of fibrillation will prevent these tragedies, correct the stenosis and often restore normal rhythm. But if fibrillation has been present many months sinus rhythm is seldom restored spontaneously after operation. Moreover, long-standing fibrillation almost doubles the operative mortality, chiefly because of deaths from peripheral and cerebral emboli. Nevertheless it is not a bar to valvotomy providing absolute contra-indications (as described below) are absent, and a fair or even excellent result can be achieved in the majority of cases. In longstanding cases of fibrillation it is not necessary to correct the arrhythmia medically either before or after operation, though this should be attempted in early cases of fibrillation that do not recover spontaneously afterwards.

(3) *Previous Embolism.* A history of previous embolism is not a contra-indication provided the patient is not crippled by paralysis. Indeed recovery is a powerful inducement to rectify the stenosis and cure the stasis in the left auricular appendage before further damage is sustained. At operation all clot is washed out of the appendage before the commissures are split, to prevent portions breaking away during the manoeuvres, and compression of the common carotid and innominate arteries helps to avoid cerebral embolism. These measures go far to ensure the safety of the patient, but if necessary peripheral embolectomy can be performed at the conclusion of the valvotomy.

(4) *Mitral Incompetence.* It is not an exaggeration to say that the assessment of incompetence accompanying stenosis is the most worrying problem in the selection of patients. A disproportionate number of deaths from valvotomy and of the poorer postoperative results occur in cases of stenosis with severe or predominant incompetence. The diagnosis is difficult and frequently impossible. Often the degree of regurgitation cannot be assessed until the surgeon has his finger in the valve orifice. Despite much research, auscultation is still the best available method of diagnosis, revealing a loud systolic, well conducted murmur at the apex. Logan and Turner [3] believe that predominant incompetence should be suspected if the first heart sound at the apex is absent or faint or even not accentuated, and if the opening snap of the mitral valve is not heard. Radioscopy may show expansile pulsation of the left atrium but this sign is not always pathognomonic. Electrocardiographic evidence of

left ventricular hypertrophy may appear if it is not hidden by right ventricular preponderance. Aortic incompetence gives rise to confusion, but should be distinguished by the abnormal pulsation of arteries and raised pulse-pressure. Mitral regurgitation in the presence of stenosis cannot be diagnosed by catheterization (Venner and Holling[4]). When severe incompetence is suspected operation should not be advised. Mortality is high, post-operative results poor, and, if, as is so often the case, the valve cusps are shortened and rigid, valvotomy in the strict sense may not even be possible.

Despite the unfavourable features of severe incompetence it must be emphasized that minor degrees occur in about 30% of cases and are not a contra-indication to operation. Successful valvotomy never produces regurgitation but often improves such as already exists. If this is believed to be not more than moderate valvotomy should be attempted.

(5) *Congestive Cardiac Failure.* This frequently occurs in association with fibrillation but may be brought on independently by pregnancy or efforts to continue with strenuous work despite progressing symptoms. Some degree of cardiac enlargement is usual but need not imply an advanced stage of the disease. Evidence of liver damage is more serious and may render operation inadvisable. In every case the history must be most carefully considered, in particular the manner of onset and the number of times congestion has been present, the duration of each episode and the response to digitalis and adequate medical treatment. A rapid response is a good sign, and if the congestion can be controlled valvotomy should not be delayed.

It has been said that if the myocardial failure can be controlled with digitalis mitral valvotomy is not required. This is an ignorant and fallacious argument. Digitalis revives the flagging myocardium for a longer or shorter period but does nothing to correct the slowly progessive narrowing of the valve orifice. The time comes when digitalis and bed-rest cannot control the congestion, and by then valvotomy may be useless.

Ligation of the inferior vena cava, which reduces the venous return to the heart, may improve cases of uncontrollable cardiac failure for a period up to 18 months. During this temporary improvement some patients again become suitable for valvotomy.

(6) *Cardiac Enlargement.* It has been shown (Baker *et al.*[5]) that the size of the heart does not always affect the results of operation, but considerable enlargement persisting despite medical treatment suggests that the myocardium is poor, and chances of a successful outcome from operation are small. Previous carditis may have caused severe myocardial damage and the disability may be due more to this than to the valve lesion. On the other hand, local enlargement must be considered in conjunction with signs of specific lesions. A greatly dilated left atrium is often associated with severe mitral regurgitation, and enlargement of the left ventricle may either confirm this or suggest an aortic valve lesion. Moderate enlargement of both ventricles need not imply that the condition is in an advanced stage, and, even if associated with pulmonary hypertension and aortic valve disease, does not contra-indicate valvotomy if symptoms are predominantly due to mitral obstruction. Enlargement of the right atrium and ventricle may be due to tricuspid disease, severe myocardial damage or to pulmonary hypertension. If due to the last it is probably of less significance.

(7) *Associated Aortic Valve Disease.* This occurs in about 20% of cases with mitral stenosis. The first essential is to decide whether the aortic or the mitral lesion is the main cause of the disability. The answer can usually be obtained by studying the character of the pulse, the electrocardiogram, and the radiological indications of left ventricular enlargement and pulsation in the aorta. Hypertension and mitral incompetence must be remembered as causes of left ventricular enlargement. If the aortic lesion is considered to be only mild or moderate and not predominantly responsible for the symptoms, operation should be advised, and the results may be awaited with confidence. Recently Bailey *et al.*[5] have been performing both mitral and aortic valvotomy at one operation with encouraging results.

(8) *Calcification in the Mitral Valve.* This occurs in a minority of cases and is seldom a factor of importance in pre-operative selection. Its extent may vary from a few granular deposits to an irregular craggy mass holding the orifice rigid. The grosser varieties are frequently associated with regurgitation. Visibility on X-ray depends on the density of the mass rather than its distribution. Its extent, its effect on cusp function, and whether valvotomy is possible or likely to give a good result, can be judged only by exploration with the surgeon's finger.

(9) *Pulmonary Hypertension.* It used to be thought that severe pulmonary hypertension was a contra-indication to operation but results have now disproved this contention. In nearly all cases the hypertension is reversible, though after operation pressures may be slow to fall and may remain higher than normal in the more severe cases. This fall occurs despite such histological changes as intimal thickening, medial hypertrophy and increased elastic fibres in the walls of the pulmonary arteries (Snellen *et al.*[6]). Because of the dangers of pulmonary oedema it will be obvious that a high pressure in the pulmonary artery on catheterization is an indication for early treatment.

CONTRA-INDICATIONS

Unfavourable features affecting suitability for operation have been mentioned, but certain contra-indications need re-emphasizing.

The age of the patient at operation is important because of the danger of activating latent carditis. Persisting tachycardia and a raised erythrocyte sedimentation rate should invite suspicion and prohibit valvotomy except for emergencies such as profuse and recurrent haemoptysis. Though no definite age limit can be fixed it has been found safer to avoid operating for 10 to 15 years after the last-known episode of carditis. Symptoms are seldom severe before the age of 20 years, though sometimes valvotomy may become necessary at an earlier age because of a complicated pregnancy. O' Neill[7] has performed valvotomy on a patient aged 4 years. However, most young patients with mitral stenosis dying from congestive failure die from the effects of carditis and not from the mechanical effects of valve obstruction. Therefore, before considering operation on a young patient one should generally have obstructive symptoms as a main feature.

Operation is seldom performed for patients aged over

55 years though O'Neill and his colleagues have successfully done one on a case aged 65 years. Beneficial results cannot usually be expected in these older patients.

The features of predominant mitral regurgitation and predominant aortic disease, gross cardiac enlargement, endocarditis, aneurysmal dilatation of the left atrium, and severe congestive failure not responding to medical measures, constitute absolute contra-indications and need not be discussed further.

It will be apparent that in the two groups of ideal and complicated cases there are few contra-indications. This is because most patients unfit for valvotomy are already in the 4th group when first seen. But although operation can be safely performed on most patients in the 2 groups mentioned good results may not be achieved in every case. Digital exploration of the valve by the surgeon may show that valvotomy is not possible, or a deformed fibrosed valve may prevent any improvement after the commissures have been split or cut. Despite all precautions in pre-operative selection about 10% are no better off after an apparently successful operation. Further experience may reveal the reason.

VALVOTOMY IN PREGNANCY

One of the happiest results of the successful development of cardiac surgery has been the effect of valvotomy on women who are pregnant or who wish to bear children. Although some women with mitral stenosis are not seriously incapacitated by being pregnant, particularly if young, others become unduly dyspnoeic quite early, and pulmonary oedema or congestive failure may occur. The experiences of Brock [8] and Logan and Turner [9] have shown that it is no longer justifiable to terminate the pregnancy of such patients. If valvotomy is indicated on the usual grounds pregnancy does not constitute a contra-indication. Results in these cases have been excellent and after operation pregnancy has continued to its natural conclusion. Young women with pulmonary congestion who desire to have children should be advised to have a valvotomy before they become pregnant (Bramwell [10]). Those who are already pregnant usually come for advice when congestive failure or pulmonary oedema develops. They respond well to initial medical treatment, and, if required, valvotomy should follow when the greatest improvement has occurred. This applies particularly to cases in the first 6 months of pregnancy. In the last few weeks medical treatment alone may suffice, and valvotomy may be postponed until after delivery. However, if operation is postponed a strict watch must be kept for signs of acute pulmonary oedema, which may render valvotomy a matter of urgency.

MORTALITY AND RESULTS

As was to be expected, the first published figures for the mortality of mitral valvotomy were high, for physicians were not prepared to offer any but the worst cases for surgery. However, results in early survivors were so gratifying that this early hesitancy soon passed, and a new outlook opened for patients. Present mortality figures reveal the extent of this progress. Brock's figure of 8% (Baker *et al.*[2]) includes desperate early cases, many of which would be considered unsuitable for surgery now. O'Neill's[7] over-all mortality in 800 cases was 10%, but over the last 2 years it was only 4%. Mason of Newcastle had a mortality of 10% in his early cases, while Holmes Sellors [11] performed 64 valvotomies without a single death. This year Logan and Turner [12] reviewed the results of operation in their first 100 cases. Their operative mortality was 7%, and of 74 patients followed up for more than 3 months results were poor in only 2 cases. These figures make impressive reading, but more impressive still is a post-valvotomy follow-up clinic.

Amongst the important factors affecting operative mortality are the age of the patient and the stage of the disease. The significance of each of these has been indicated, but it must again be pointed out that to improve the figures valvotomy must be done earlier and before complications have developed.

After successful valvotomy 3 out of 4 patients return to a normal life, 2 out of 3 of these being able to carry on such pastimes as sporting activities and dancing. A hard-core of about 10% remain unchanged. The electrocardiogram returns to normal in 30%, improves in 40% and is unchanged in the remainder. Most cases show marked radiological improvement, but murmurs generally remain in some form or other.

Every patient with mitral stenosis must be given the chance of being restored to better health, and careful selection along the lines indicated is the best way of achieving a satisfactory result.

SUMMARY

The indications for the surgical correction of mitral stenosis are reviewed.

The majority of cases with this condition have a poor prognosis once disability commences, and valvotomy should be considered whilst the patient is still in the ideal stage and before complicating features develop.

The effect of these features on operability is discussed. It is pointed out that although the mortality and prognosis is less favourable in cases with complications, few of them prohibit operation, and that in the majority good results usually follow a successful valvotomy.

In most cases the decision on operation can be made from a consideration of the patient's history and the findings of routine physical, electrocardiographic and radiological examination.

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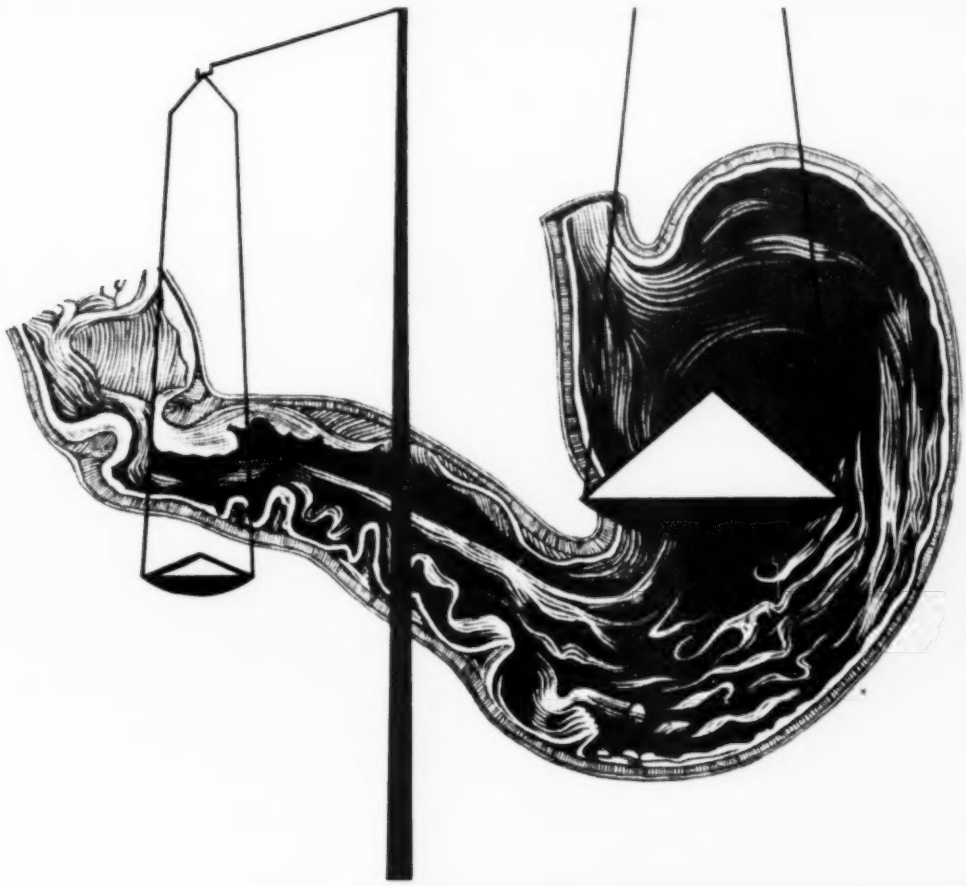

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South African Medical Journal
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VAN DIE REDAKSIE

DIE DR. H. A. MOFFAT-GEDENKFONDS

Die Mediese Vereniging van Suid-Afrika verrig baanbrekerswerk met sy onderneming om bydraes vir 'n fonds ter ere van wyle dr. Moffat in te samel en te administreer. Hierdie fonds sal gebruik word vir prystoekennings aan mediese studente en geneeshere. Op die oomblik ken die Vereniging jaarliks twee medaljes toe aan outeurs van uitstaande artikels wat in die *Suid-Afrikaanse Tydskrif vir Geneeskunde* verskyn—die Hamilton-Maynard medalje (waarvoor die Vereniging verantwoordelikheid aanvaar het toe die *Transvaalse Tydskrif vir Geneeskunde* by die *Tydskrif* ingelyf is) en die Leipoldt-medalje wat in 1950 ingestel is. Die Vereniging beskik nie oor enige bekronings by wyse van pryse of studiebeurse nie en sal 'n puik diens lewer deur 'n permanente organisasie in te stel om geskenke en bydraes van lede, wat graag 'n nagedagtenis wil huldig of die studie van en navorsing in geneeskunde wil aanmoedig en bevorder, te ontvang en te administreer. So 'n organisasie sal nie alleen tot eer van die Vereniging strek nie, maar ook tot die nagedagtenis van diegene wie se name die skenkers wil huldig. Die Vereniging sal 'n groot diens aan die beroep en die samelewing bewys en sal terselfdertyd sy eie prestige verhoog.

Uit 'n akademiese oogpunt beskou is Suid-Afrika 'n jong land en alhoewel daar met die verloop van die jare 'n aanwas is in die aantal en grootte van die studiebeurse waaroor ons uniwersiteite beskik, is ons mediese fakulteite en die professie, vernaamlik wat die voorgraadse student betref, nie ryk bedeel nie. Om die opleiding in geneeskunde en die uitbreiding van mediese kennis en vernuf aan te moedig en te bevorder is 'n fundamentele doelwit van ons Vereniging wat in die konstitusie neergelê is, en die arbeid en uitgawe aan hierdie veld bestee sal gewis deur 'n ryke oes bekroon word.

Groot kapitaal-bedrae is nodig om vir aansienlike studiebeurse voorsiening te maak en die Vereniging is nie in staat om dit onmiddelik in te samel nie. Maar dit is die eerste stap wat van belang is. Die som wat alreeds tot die Dr. Moffat-fonds bygedra is sou byvoorbeeld 'n jaarlikse prys kan voorsien wat met dank deur enige student ontvang sou word. Daar kan op staat gemaak word dat in die toekoms daar om hierdie kern kapitaal opgestapel sal word. Die voorstel is gemaak dat 'n spesiale komitee ingestel moet word eerstens om die Dr. Moffat-fonds te administreer en tweedens om adviserend op te tree met betrekking tot trustgelde van die Vereniging. Om so 'n administrasie in die lewe te roep sou verstandig wees.

Ons wil van hierdie geleentheid gebruik maak om weereens die aandag van lede op die Dr. Moffat-fonds te vestig. Henry Alfred Moffat was 'n sieraad vir sy professie. Vroom, opreg en onselfsugtig het hy sy lewe aan

EDITORIAL

THE DR. H. A. MOFFAT MEMORIAL FUND

The Medical Association of South Africa has broken new ground in undertaking to collect and administer a memorial fund in honour of the late Dr. Moffat, to be used for the creation of awards for medical students or practitioners. At present the Association awards two memorial medals annually to the authors of outstanding articles in the *South African Medical Journal*—the Hamilton-Maynard medal, the responsibility for which was taken over from the *Transvaal Medical Journal* when it was incorporated in the *Journal*, and the Leipoldt medal, which was instituted in 1950. The Association has in its gift no awards in the nature of prizes, exhibitions and scholarships, and it would do well to provide a permanent organization able to receive gifts and donations from members who wish to perpetuate a memory or promote medical education and research, and to administer the funds thus collected. In doing so the Association will honour itself as well as the memory of those in whose names the gifts are made. It will perform a service for the medical profession and the community as a whole, and at the same time add to its own stature and prestige.

South Africa is academically a young country, and though with the passing years the number and size of prizes and scholarships available at its universities gradually increase, the medical schools and profession are still not richly endowed in this respect, especially for undergraduate students. To encourage and promote medical education and the extension of medical knowledge and skill is a fundamental object of the Association, prescribed in its constitution, and work and expenditure in this field will surely produce a valuable harvest.

To provide substantial scholarships large capital sums are required, and there is no immediate prospect of the Association's collecting them. But it is the first step that counts. The amount already subscribed to the Dr. Moffat fund would, for instance, produce an annual prize which a student would be gratified to receive, and the existence of this nucleus may be relied upon to serve as a focus upon which capital will accumulate in the future. It has been proposed that a special committee should be set up to advise on Association trust funds of this nature, and in the first place to administer the Dr. Moffat fund. It would be a wise step to create such an administration.

We take this opportunity of again drawing the attention of members to the Dr. Moffat fund. Henry Alfred Moffat was an example of the finest flower of the medical pro-

die diens van sy medemens gewy. By uitstek vredeliewend het hy nietemin in vier oorloë gedien. Hy was baanbreker op die gebied van moderne ontwikkelings van geneeskunde in ons land. Hy het sy professie in die Mediese Vereniging en in die Mediese Raad vir 'n langer tydperk gedien as wat die meeste van ons kan onthou. Op die beroep en die samelewing het hy 'n goeie invloed gehad. Van hom is dit dikwels gesê dat almal wat met hom in aanraking gekom het daardeur verryk is.

Dr. Moffat het 'n hoë ouderdom bereik, en baie geneeshere het tot die mediese beroep toegetree nadat hy die tuig neergelê het. Maar sy gedagtenis bly helder in die geheue van die ouer lede van die professie en daar is baie wat tot die gedenkfonds sal wil bydra sodat dit 'n waardige herdenking aan hierdie groot geneesheer sal wees. Hul word daaraan herinner dat die Sekretaris van die Vereniging bydraes met dank sal ontvang en dat donasies aan die posadres Posbus 643, Kaapstad, gestuur kan word.

fession. Upright and devout, devoid of self-seeking, he lived a life of service to his fellows. The most pacific of men, he yet served in four wars. He was a pioneer of the modern development of medicine in this country. For longer than most of us can remember he served his profession in the Medical Association and the Medical Council. He was an influence for good in the profession and the community. It has many times been remarked that all who came in contact with him were the better for the association.

Dr. Moffat lived to a ripe age, and many practitioners entered the profession after he had retired. But his memory is green among the older members of the profession, and there are many who will wish to subscribe to the memorial fund so that it may be worthy of the great man it commemorates. They are reminded that the Secretary of the Association will be glad to receive their gifts. The address is P.O. Box 643, Cape Town.

A FATAL CASE OF SARCOMA IDIOPATHICUM HAEMORRHAGICUM OF KAPOSI

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Kaposi's haemangiosarcoma is of fairly frequent occurrence amongst the Bantu people of Africa.[1, 2] One of us (J. F. M.) has, over the last decade, personally studied a series of 95 cases, of which 90 occurred in the Bantu. In spite of its relative frequency an opportunity to observe the post-mortem features has not, until recently, occurred in our experience. We have seldom found visceral involvement and only 2 of our cases have terminated fatally. Of the 95 cases studied 8 have shown extension to the viscera. Four of the 8 cases showed evidence of skeletal lesions, one of inguinal-gland involvement and another of splenic and generalized glandular enlargement, but only one showed extensive spread to multiple viscera. Of the 2 fatal cases death could be directly ascribed to Kaposi's haemangiosarcoma in only one. The second case died of tuberculo-silicosis and active tuberculosis. In the experience of American workers visceral spread of Kaposi's haemangiosarcoma is a common feature and numerous autopsy records are available in which they record involvement of practically every organ of the body. As this is an unusual feature of the condition in South African Bantu we wish to place on record one of the fatal cases to which we have referred.

THE CASE

The patient, a Bakwena male labourer aged 40 years, was admitted to Baragwanath Hospital on 14 February 1952. The diagnosis upon admission was tuberculous peritonitis. The family history was irrelevant and close questioning failed to elicit any history of a condition similar to his own in other members of the family. His previous history was non-contributory.

Upon admission the patient complained of intermittent abdominal pain localized around the umbilicus. The pain did not radiate and was neither relieved nor aggravated by any particular circumstances. The appetite was fair and the patient had no history of vomiting. Bowel movements had been regular but he had been constipated during the 2 days prior to admission.

He also complained of oedema of the legs which, like the abdominal pain, had been present for one month and had been gradually progressive.

There was no history of haemoptysis, headaches, or any sensory or motor disturbance. A non-productive cough had been present for some time and there was mild nocturnal frequency of micturition.

PHYSICAL EXAMINATION

The patient showed pitting oedema of the legs extending to the level of the knees. In addition there were numerous rubbery subcutaneous nodules varying in size from 5 to 15 mm. all over the body but more numerous in the right arm and right leg. Some of the nodules lay in the subcutaneous tissue and could be detected only upon pal-

pation. They did not appear to be attached to the deep fascia or to the overlying dermis. They could be moved in a horizontal, but not in a longitudinal direction. They were smooth, round or oval in shape and were not fluctuant or tender. In the lower extremities many of these nodules appeared to follow the line of the deep saphenous vein.

The patient was well nourished and showed no anaemia, cyanosis or jaundice. Upon examination of the cardio-vascular, respiratory, central nervous and genito-urinary systems no significant signs were found apart from a small hard nodule in the left epididymis and numerous scattered rhonchi in both lung fields. Temperature 98° F, pulse rate 88, respirations 20 per min., blood pressure 98/40 mm. Hg.

There was a mass of glands in the left axilla and in both groins. None of the glands was tender. The liver was enlarged about 3 fingers but was not tender. There was slight ascites. The spleen was doubtfully palpable, and there were several irregular lobulated non-tender masses palpable in the abdomen, above and on both sides of the umbilicus. The cervical glands were palpable on both sides of the neck. A large haemorrhage was observed in the right fundus just above the macula.

LABORATORY EXAMINATIONS

Urine. A trace of albumin, occasional casts and red blood corpuscles.

Stool. Ova of ascaris lumbricoides present and the benzidine test for occult blood positive.

Blood. Urea 36 gm., cholesterol 105 mg. per 100 c.c. Serum proteins: albumin 2.9 g. and globulin 5.3 g. per 100 c.c. Standard Eagle test negative. Thymol turbidity test 8.5 units. Thymol flocculation 4+ positive. Uco's modification of the Takatara reaction 3+ positive. Alkaline phosphatase 19.6 King-Armstrong units. Hb 7.8 g. %. Erythrocytes 3,430,000. Leucocytes 4,700 (neutrophils 24%, monocytes 10%, lymphocytes 61%, eosinophils 5%). E.S.R. 57 mm. per hr. P.C.V. 28 c.c. %. M.C.H.C. 29%. P.I. 82%.

X-ray of chest and long bones revealed no pathological change.

E.C.G. within normal limits.

DIAGNOSIS

In view of the enlarged liver, the palpable spleen, and the masses in the abdomen, the following differential diagnoses were considered: (1) tuberculous peritonitis, (2) cirrhosis of the liver and (3) multiple hydatid cysts of the peritoneum.

In addition, because of the enlarged glands and the subcutaneous nodules the possibility of lymphosarcoma or some other malignant reticulosis was considered. Because of the multiple subcutaneous nodules the possibilities of cysticercosis and neurofibromatosis were also entertained. In order to assist towards an accurate diagnosis one of the subcutaneous nodules was removed and submitted for histopathological examination. Section showed the histological features of Kaposi's haemangiosarcoma (Fig. 1).

PROGRESS

Fever ranging between 99° F and 101° F persisted throughout the patient's stay in hospital. The oedema of the legs showed no sign of abating despite bed-rest, and on 5 March facial oedema was evident. It was thought because of albuminuria and microscopic haematuria that this was due to a renal lesion, possibly infiltration by the Kaposi tumour. Hypo-albuminaemia may have contributed to the production of the oedema.

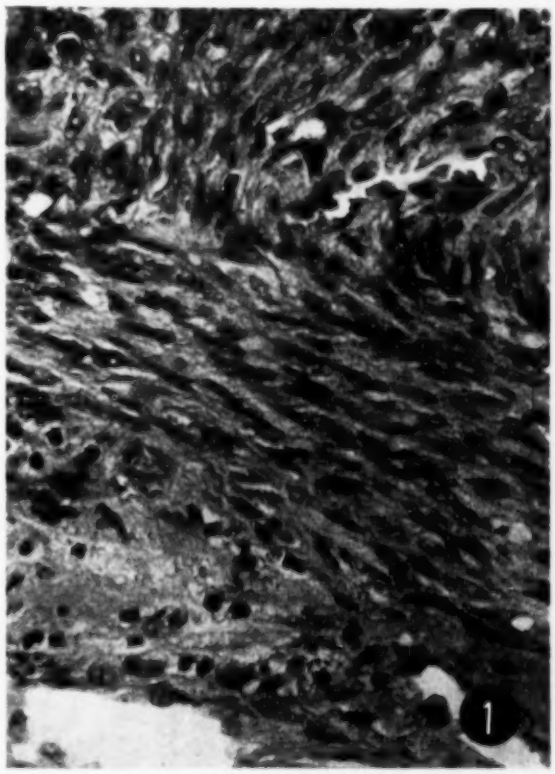

Fig. 1. Section of subcutaneous nodule showing sweeping bands of spindle cells and numerous blood spaces. H. & E. × 420.

He was transferred to the non-European Hospital, Johannesburg, on 6 March for deep X-ray therapy. He received a daily dose of 800 r to the abdomen and extremities over a period of 4 days. Thereafter he refused further treatment and left hospital in order that he might discuss with his relatives the question of laparotomy. It was felt that this was necessary to determine the nature of the abdominal masses which might or might not be due to the same pathology as the subcutaneous nodules.

The patient was readmitted to hospital (Coronation Hospital) on 7 April in deep coma. He was grossly dehydrated, anaemic and obviously uraemic. The urine contained albumin, granular casts and red cells. Death occurred 2 hours after admission.

AUTOPSY

Owing to various legal difficulties permission for an autopsy was not obtained until 60 hours after death. The relevant findings were as follows:

The body was that of a grossly emaciated, young adult male

Bantu. There was well-marked pitting oedema of the legs and feet. The mucous membranes were pale, but there was no cyanosis or icterus.

Skin and Subcutaneous Tissues. Small nodules varying in diameter from 5 to 15 mm. were palpable in the subcutaneous tissues of both thighs and both arms and forearms. The majority of them were not adherent to the skin. Dissection of the subcutaneous tissues of the thighs revealed that they were distributed along the course of the superficial veins, and each one was purple in colour.

Lymphatic Glands. The left axillary lymph glands were grossly enlarged, and the inguinal glands were slightly enlarged on both sides. On dissection the axillary glands were much enlarged, firm and matted, and on section showed areas of homogeneous flesh-coloured tissue alternating with irregular zones of purple haemorrhagic appearance. The inguinal glands showed no gross changes. The lymph glands of the internal mammary chain were grossly enlarged and purple, and were connected by large tortuous blood vessels (Fig. 2).

Fig. 2. Posterior surface of the sternum showing enlarged internal mammary lymph glands involved by Kaposi's haemangiosarcoma.

The mesenteric retroperitoneal and portal lymph glands all showed similar changes, which were most marked in the glands adjacent to the pancreas. These glands were grossly enlarged, firm and matted together, and on section, had a dense homogeneous fleshy appearance. An occasional small area of purple haemorrhagic tissue was present in them.

Respiratory Tract. Trachea and bronchi showed no gross changes. The lungs showed slight congestion and oedema of the basal lobes. No obvious nodules of tumour were present. The pleural sac showed old adhesions, but no other gross changes.

Heart.

The heart was normal in size, and the only noteworthy changes were that the myocardium was pale and soft. A small reddish nodule 2 mm. in diameter was present in the

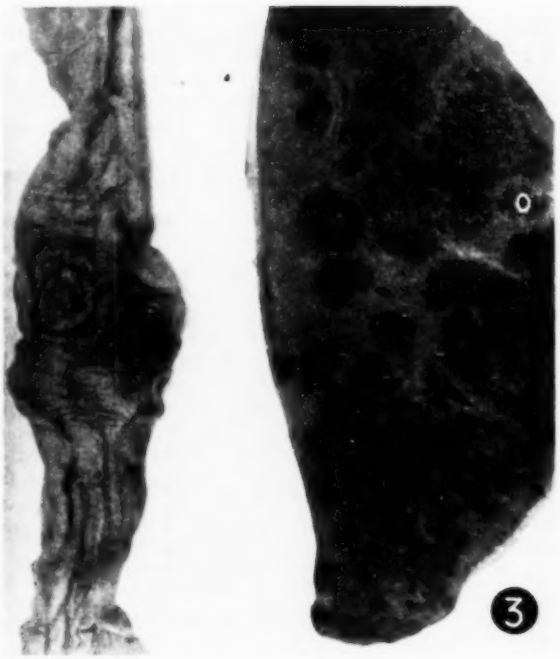

Fig. 3. Ileum and liver showing infiltration by the neoplasm.

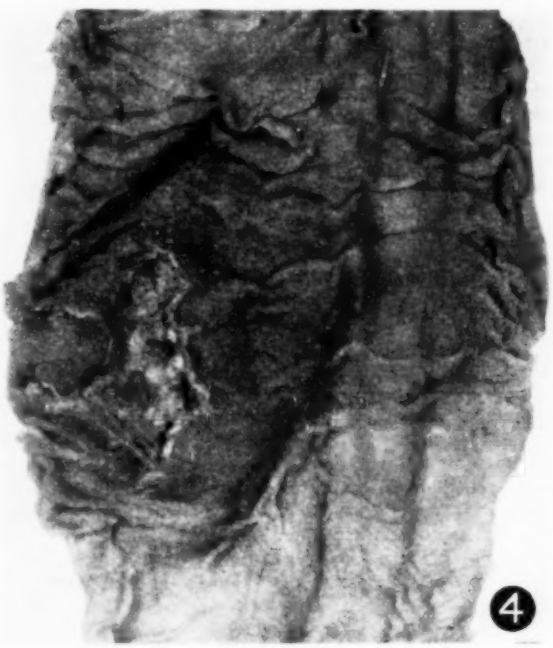

Fig. 4. Ulcerated neoplastic lesion in the lower ileum.

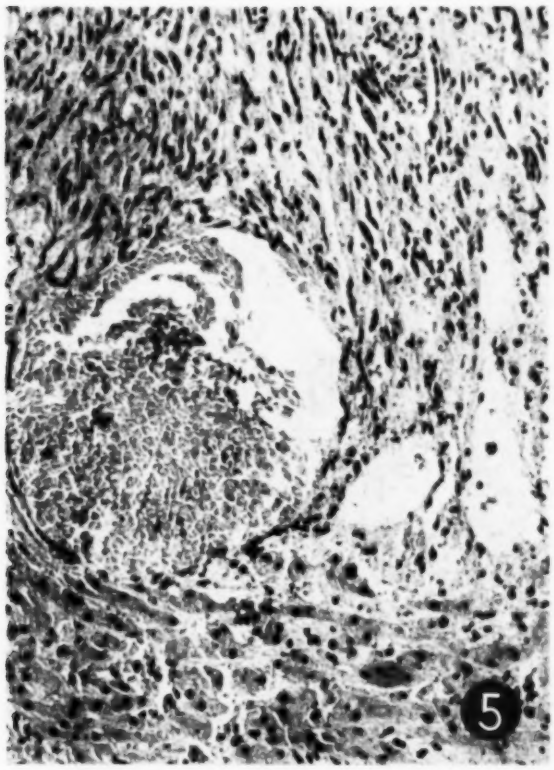

Fig. 5. Kaposi's haemangiosarcoma of the liver at the junction of normal and neoplastic tissue. H. & E. × 210.

endocardium of the right auricle, posteriorly, immediately above the tricuspid valve. The pericardial sac contained slight excess fluid.

Gastro-Intestinal Tract. Embedded in the lymphoid tissue on each side of the base of the tongue was a purple area of tumour tissue 3 mm. in diameter.

In the abdomen there was a slight excess of clear straw-coloured fluid. The oesophagus, stomach and duodenum were normal.

The jejunum showed numerous rounded, purple nodules, projecting into the lumen, varying in size but averaging 3–4 mm. in diameter. The size of these nodules tended to be larger in the distal portions of the jejunum. The ileum showed similar purple nodules (Fig. 3), which apparently were principally in the lymphoid tissue. The Peyer's patches of the terminal ileum all showed involvement, and here the nodules were quite large and some showed central ulceration (Fig. 4). The nodules in the bowel were visible from the serosal aspect, showing up as areas of purple discolouration.

The liver was grossly enlarged (weight 2,950 gm.) and the surface was nodular. On section, masses of purple tumour tissue were seen scattered throughout the liver substance (Fig. 3). From the upper surface of the liver and running upwards to the diaphragm were numerous tortuous vessels.

The kidneys showed marked pallor. The only other macroscopic change was the presence of a small nodule of tumour tissue situated in an interpyramidal column in the left kidney. The peri-renal tissues at the upper pole of this kidney were infiltrated by tumour.

The spleen was moderately enlarged (weight 400 g.m.) and was firm. Several tumour foci were noted on section.

Other Organs. The only gross change in the endocrines was a very small nodule of tumour 1 mm. in diameter in the left suprarenal.

The brain showed no gross change.

The bone-marrow was not examined.

HISTOPATHOLOGY

The following tissues were available for histopathological examination: axillary and mesenteric lymph glands, tongue, pancreas, spleen, liver, ileum and colon.

Owing to the long period which elapsed before permission for an autopsy could be obtained marked post-mortem changes, which obscured cytological detail, occurred in the tissues. A comparison of Fig. 1 with Figs. 5, 6 and 7 shows the marked pyknosis of the nuclei of the neoplastic cells in the post-mortem tissues as compared with the biopsy material. The endothelial cells of the vessels in Figs. 5 and 7 show a similar change but the cells of the muscularis mucosae in Fig. 7, and of the myomedium of the vessel wall in Fig 6, show better preservation of their nuclear structure and are quite distinct from the tumour cells. In Fig. 6, the tumour cells appear to be continuous with the adventitial cells of the vessel, but post-mortem changes made detailed cytological study unsatisfactory. The histopathological study is therefore based mainly on the appearances in sections stained by the haematoxylin-eosin and the modified Laidlaw reticulin methods.

The histopathological picture was essentially the same in all the tissues except that in the mesenteric and axillary glands and in the pancreas there was extensive replacement of the

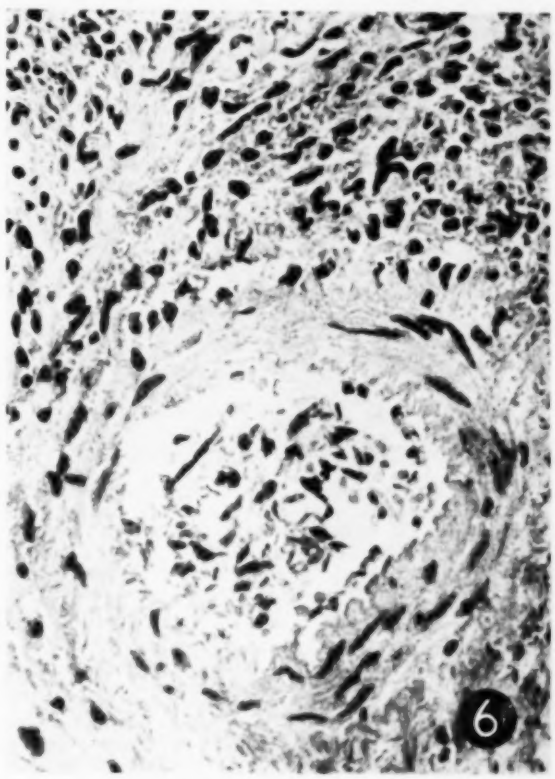

Fig. 6. Section of spleen in which the neoplastic cells appear to be continuous with the adventitial cells of the vessel. They are clearly differentiated from the muscle cells of the vessel. H. & E. × 210.

normal and of the tumour tissue by dense fibrosis. It was also observed in sections of the gut that the amount of fibrosis associated with the Kaposi lesions was rather greater than has been usual in our experience and that, in many areas of the gut uninvolved by tumour, fibrosis of the tunica submucosa was present. In tumour tissue from previous cases of Kaposi's haemangiosarcoma this tendency to fibrosis has not been observed to the same extent and it is considered that in this particular case other factors probably played a

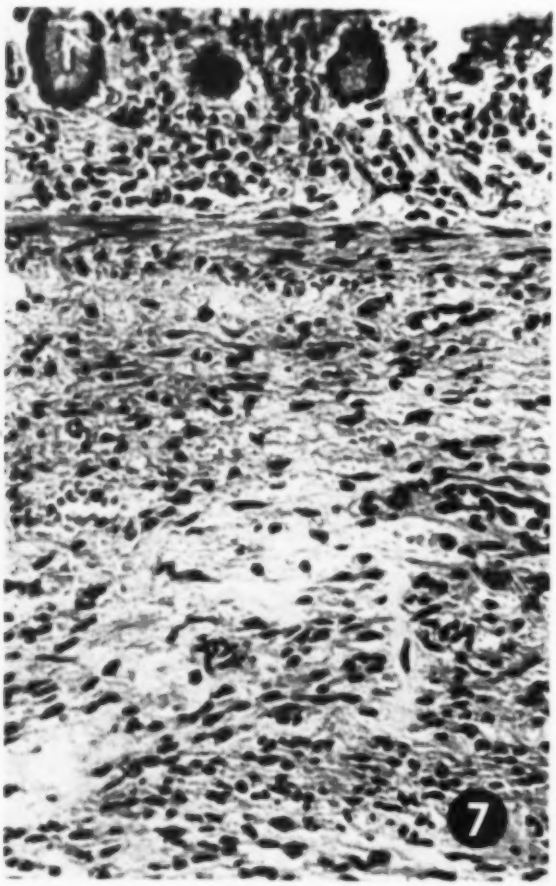

Fig. 7. Neoplastic tissue in the tunica submucosa of the gut. The muscularis mucosa runs as clearly defined intact band between the mucosa and the tumour. H. & E. × 215.

part. These factors were the presence of bilharzia in the gut and in some of the mesenteric glands and the fact that the patient had previously been treated with deep X-ray therapy. There was also the fact that in the Bantu there is a tendency to excessive formation of fibrous tissue. If, however, fibrosis is discounted the lesions in all the organs were essentially the same as those which have previously been described in Kaposi's haemangiosarcoma of the skin and subcutaneous tissue. The basic pattern was that of interweaving sweeping bundles of spindle cells with very large numbers of capillary spaces lying between them. Some of the capillary spaces were well defined and were lined by a single layer of endothelial cells. The majority however consisted of irregular spaces containing red blood corpuscles lying in direct contact with the tumour cells.

In the liver, where the tumour gradually merged into the adjacent liver tissue, the blood spaces at the line of junction changed from the usual irregular cleft-like capillary spaces to rather larger, fairly regular, capillary and cavernous blood-spaces (Fig. 5). The process appeared to be one of gradual encroachment by the tumour tissue and as it advanced and pressed upon the liver cells the latter atrophied and eventually disappeared to be replaced by spindle cells, fibrous tissue and the blood spaces of the tumour. In the spleen also the capillary and cavernous blood-spaces of the tumour merged into the surrounding splenic tissue. In this organ the histopathological appearances suggested derivation of the tumour from the pericytes of the arterial vessels (Fig. 6). The walls between the vascular spaces were very thin and consisted only of reticulin fibres and a single layer of spindle cells.

The histological picture in the mesenteric lymph glands was confused by the extensive fibrosis of the tissues. In the fibrosed areas there were large numbers of lymphocytes, numerous multinucleated giant cells of the Langhans type, and occasional bilharzial ova. No multinucleated cells were observed in the actual tumour tissue and they have not been observed by us in previous cases of this condition. It appears likely therefore that they were associated with the concomitant bilharzial infestation.

In all the sections examined from the small and large gut it was apparent that the tumour originated in the tunica submucosa and was in direct continuity with it (Fig. 7). It tended to occur in relation to foci of lymphoid tissue and Peyer's patches. The large blood-vessels in the tumour were well formed and were similar to those of the tunica submucosa except that they were of greater calibre. The lesion itself consisted of the usual sweeping bands of spindle cells. Very little evidence of mitotic activity was observed. Between

Fig. 8. Liver section showing the abundant reticulin network of the tumour and its continuity with that of the adjacent hepatic sinusoids. Modified Laidlaw reticulin stain × 210.

the spindle cells there was a rich reticulin network merging into collagen bundles. The lesion, which was extremely vascular, again showed marked variation of the blood channels from irregular spaces to well-formed capillaries and numerous arterial and sinus-like spaces, the last of which consisted of a single layer of endothelial cells in direct contact with the surrounding fibrous tissue. The muscularis mucosa ran as an intact layer between the tumour tissue and the mucosa (Fig. 7). Where ulceration occurred there was rupture of the muscularis mucosa but it did not appear to be primarily involved in the neoplastic process.

A prominent feature of the lesion, wherever it occurred, was the large amount of reticulin associated with it (Fig. 8). The reticulin, which tended to be coarse, lay between the individual spindle cells, and was in direct continuity with the reticulin related to the blood vessels of adjacent tissues. In the gut is was in continuity with the reticulin of the vessels of the tunica submucosa. In the spleen it was in continuity with the reticulin of the sinusoids. In the liver, although the reticulin lay between the spindle cells, it was prominent in the vascular areas around blood spaces, whether they were of the cleft-like, the capillary or the cavernous type. At the periphery of the tumour the reticulin of the liver sinusoids passed directly into that lying between the capillary and cavernous blood spaces of the tumour (Fig. 8) and thence into the tumour proper, where it increased in abundance in direct proportion to the cellularity of the lesion. In all sections it was apparent that the reticulin network lay in close relationship to the spindle cells of the tumour (Fig. 8).

As regards the fibrosis found in some of the lesions, we have noticed in previous cases that the natural progress of the disease after irradiation is the replacement of cellular tissue by dense collagen bands progressing to a fibrous-tissue scar. This patient had received a total of 3,200 r to the abdominal cavity during his stay in hospital. It seems likely that the period of 4 weeks which elapsed between his treatment and his death was sufficient to account for much of the fibrosis found at autopsy. We have mentioned the factor of bilharziasis and in addition there is the tendency of the Bantu to fibrous-tissue formation. It would appear therefore that the fibrosis found in this case was not a feature of the Kaposi haemangiosarcoma *per se* but was due to a number of factors.

DISCUSSION

Approximately 10% of the cases of Kaposi's haemangiosarcoma which we have observed in the Bantu have shown visceral lesions but in none have they been so extensive as in the case under discussion. A case has been reported [3] which showed involvement of all the superficial lymph glands and a splenomegaly which, as it responded to deep therapy, was presumed also to be due to Kaposi's haemangiosarcoma. Three of our cases showed involvement of inguinal lymph-glands in association with lesions of the lower limb and 4 showed skeletal lesions. In one of the latter the lesions were fairly extensive and involved the femur, tibia and small bones of a foot. In the other 3 they were associated with lesions of the soft tissues which had spread into the small bones of the feet. Some of our cases have now been under observation for as long as 7 years but only one has shown a spread of the disease to the viscera beyond that observed at the time of initial examination. In 6,000 consecutive autopsies on Bantu subjects over the last 12 years at the Johannesburg General Hospital and 1,383 at Baragwanath Hospital over the last 3 years no cases of Kaposi's haemangiosarcoma have been recorded. It would appear therefore that visceral involvement is unusual in Kaposi's haemangiosarcoma of the Bantu.

SUMMARY

A fatal case of Kaposi's haemangiosarcoma in a Bantu male patient is described. The relative rarity of visceral involvement in the Bantu is emphasized.

The photomicrographs are by Dr. F. A. Brandt of the South African Institute for Medical Research and the illustrations of the gross specimens by Mr. R. Holloway of the Medical School, University of the Witwatersrand, to whom we owe our sincere thanks.

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ABDOMINO-SCROTAL HYDROCELE OR HYDROCÈLE EN BISSAC

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This condition, variously named abdomino-scrotal hydrocele, *hydrocèle en bissac* and bilocular hydrocele, is a hydrocele extending from the scrotum to within the abdomen, with two inter-communicating portions joined by a narrower isthmus at the level of the internal abdominal ring. It is relatively uncommon, and most writers describe only a single case. It is possible that many unreported cases have occurred, particularly in endemic hydrocele districts such as the Eastern Province of Uganda. Many of the patients are Africans or Egyptians.

Prather [18] has collected 53 reported cases, including one of his own. Lysaght [15] reported another, Burkitt and Kununka [2] yet another, and the case now to be discussed brings the total to 56.

Tanzer [21] gives credit to Lord Lister for the first description of this condition in the Edinburgh Medical Journal of 1856. Prather, however, in his excellent review of the literature, has unearthed the earlier French and German articles, and makes it clear that the French had anticipated Lord Lister. Dupuytren, in 1834, was the first to suggest the title *hydrocèle en bissac* and to describe a case.

Many of the articles on this subject devote considerable space to theories as to causation. There have been two commonly-held views; firstly, that the condition is due to distension and upward extension of an ordinary hydrocele sac, and secondly that it is due to extension of an infantile hydrocele whose processus vaginalis is patent right up to the internal abdominal ring. MacEwen [17] believed that

the funiculo-vaginal portion of the peritoneum was carried as a sheath along the anterior aspect of the cord "so that this funiculo-vaginal process of peritoneum would be continuous and patent from the testicular covering to the deepest part of the pelvic portion of the cord. When this elongated sac became distended with fluid, a bilocular hydrocele would form". This theory postulates a preformed peritoneal sac in an unusual site not easily explained by normal embryology. It is easier to believe that distension with fluid occurs in a funiculo-vaginal process which is patent up to the internal ring, and that the internal pressure within such a sac causes expansion into the abdomen (Charters [4]).

A point not referred to in previous articles is the occurrence of bilocular hydroceles in women. McCune [16] collected 7 cases of hydrocele of the canal of Nuck with an intra-abdominal extension. As the canal of Nuck corresponds to the processus vaginalis of the male, it is reasonable to accept the same explanation for both male and female cases. In the case reported by McCune the abdominal component was entirely retroperitoneal, with its fundus between the layers of the broad ligament. It was approached by inguinal and abdominal incisions.

The anatomical relationships of the abdominal component of a bilocular hydrocele are of considerable importance. A dilating hydrocele sac forcing its way into the abdomen at the internal ring may make its way forwards and so become anterior to the main peritoneal sac, or backwards and thus become retroperitoneal. Like the bladder, which lies below and in front of the peritoneal cavity, a "pro-peritoneal" hydrocele sac may be partially covered in front by a prolongation of the peritoneum. These relationships with the peritoneum have led to some confusion in nomenclature. A further difficulty arises from the rather academic concept of Gutierrez,[9, 10] who states that the sac may be between the peritoneum and the abdominal muscles, between the transversalis fascia and the transversalis muscle, or directly under the abdominal wall covered only by the aponeurosis of the external oblique.

Practically, two main points arise. One is that the abdominal sac can be removed without opening the peritoneal cavity. The other is that in some cases the abdominal sac may be invested with a layer of fascia which makes enucleation difficult. There is no reason why the sac should not be expected to behave as hernias do, and to acquire an investing layer from the transversalis fascia.

Holmes [12] used the expression "pro-peritoneal hydrocele" to describe the abdominal sac in his case, and drew a distinction between those abdominal sacs which were wholly anterior to the peritoneum and those which were not. Coleman [5] and Lasbrey [13] who both used 2 incisions, an inguinal and an abdominal, both described a double layer of peritoneum covering the sac. Lasbrey incised both, whereas Coleman dissected up the peritoneal reflection without entering the peritoneal cavity. Roller [20] pleads for the avoidance of errors in removing these cysts. They are always extra-peritoneal and should be removed extra-peritoneally. This has already been mentioned as one of the two important points in the surgical anatomy, the other being that the abdominal sac sometimes requires to be enucleated from a dense fascial investment, probably acquired from the transversalis fascia. The question of surgical approach will be discussed later.

The *diagnosis* is not difficult. There is usually a history of scrotal enlargement which precedes the onset of an abdominal swelling. The abdominal mass may reach as high as, or higher than, the umbilicus, and some cases may be compared with a 7-months pregnancy. Enormous quantities of fluid have been evacuated. Von Winniwarter [22] withdrew 7000 c.c., Coleman [5] 27 pints, Cummins [6] 2 gallons, Burkitt and Kununka [2] 6 pints, Hermann [11] 3 litres, and Roller [20] 3200 c.c. Percussion will reveal resonance in the flasks, and dulness more centrally.

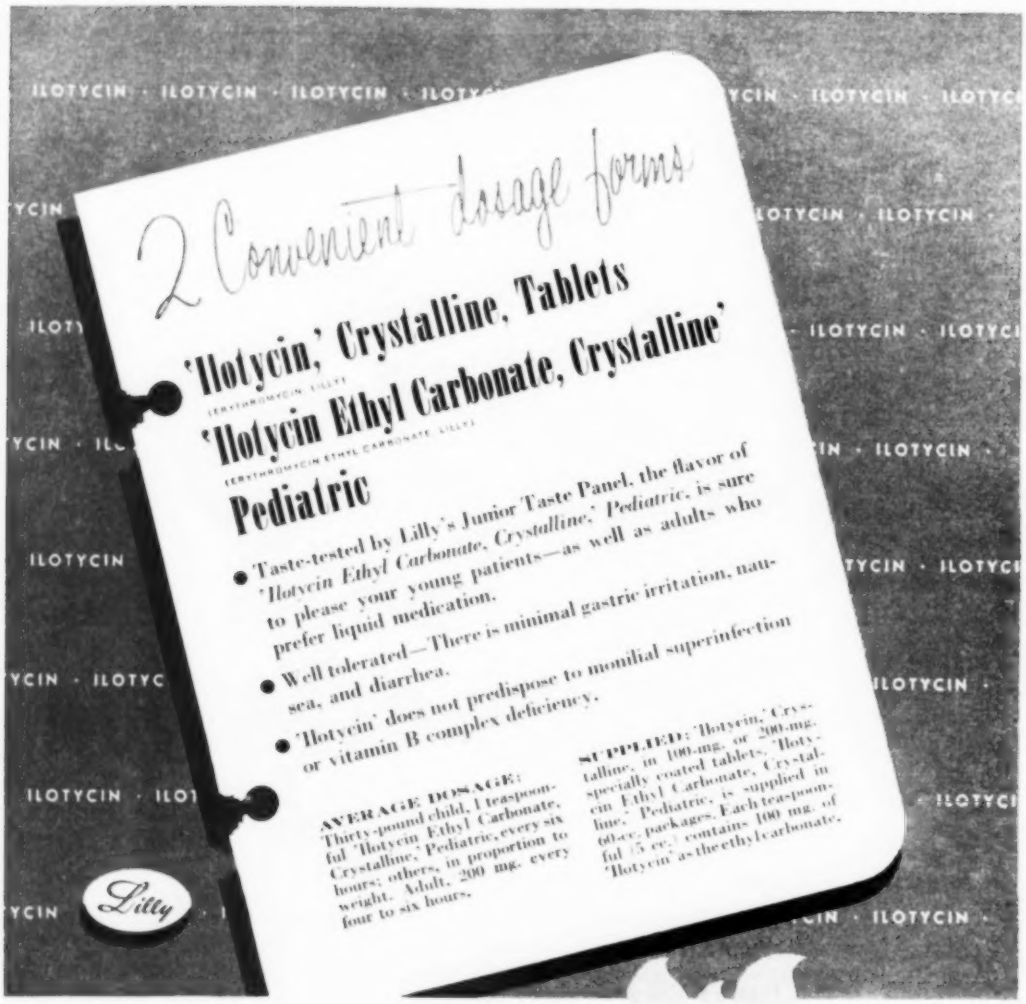
The scrotal mass is translucent. A fluid wave may be communicated to it when the patient coughs. Ballotement between a scrotal hand and a rectal or abdominal finger may detect a wave passing from one sac to the other. The size of the abdominal mass is not influenced by emptying the bladder. Aspiration of the scrotal sac will empty the abdominal sac. Finally, the injection into the emptied sacs of a radio-opaque fluid will demonstrate clearly the size, shape and position of the two sacs. Holmes [12] published a very good skiagram and Tanzer [21] and Prather [18] good pictures of the clinical appearance of a case. The diagnosis is not infrequently missed. In the case described by Lysaght [15] the scrotal hydrocele sac was dissected up and the large quantity of fluid which escaped when it was opened was thought by an onlooker to be due to the accidental opening of a distended bladder. Lewtas [14] opened the sac and at first attributed the quantity of fluid which escaped to ascites, a supposition which he abandoned when he only got off 2½ pints.

The *treatment* is by excision and this excision should be extraperitoneal. Lewtas [14] cut off the scrotal sac and drained the abdominal sac with gauze. Lasbrey [13] and Coleman [5] used 2 incisions; in Lasbrey's case the peritoneum was opened. Most writers favour a single inguinal incision and state that it is easy through this to remove the abdominal component. Cummins [6] did so "without much difficulty", Charters [3] found it "surprisingly easy", Hermann [11] caught the inside of the abdominal sac (from within) with haemostats and pulled it out. Owen Richards,[19] Firth,[8] Holmes,[12] Roller [20] and Prather [18] all found an inguinal incision adequate. Lysaght [15] like Charters, stated that with firm traction dissection of the abdominal portion was surprisingly easy.

Burkett and Kununka,[2] on the other hand, could not remove the abdominal sac, Lewtas [14] drained it, Tanzer,[21] who had done a 2-stage prostatectomy on the same case, contended himself with aspirating the whole hydrocele, and Curtis,[7] who used 2 incisions, failed to remove the abdominal sac through a mid-line incision and then got it out "with a great deal of bleeding" through an inguino-scrotal incision. It is evident that the removal of the abdominal component, often easy, sometimes requires careful surgical consideration.

CASE REPORT

A Coloured man, 45 years old, was admitted to Groote Schuur Hospital in October 1947 with 5 years' history of a mass in the left iliac fossa and an enlarged scrotum. There were no urinary symptoms. He had suffered from



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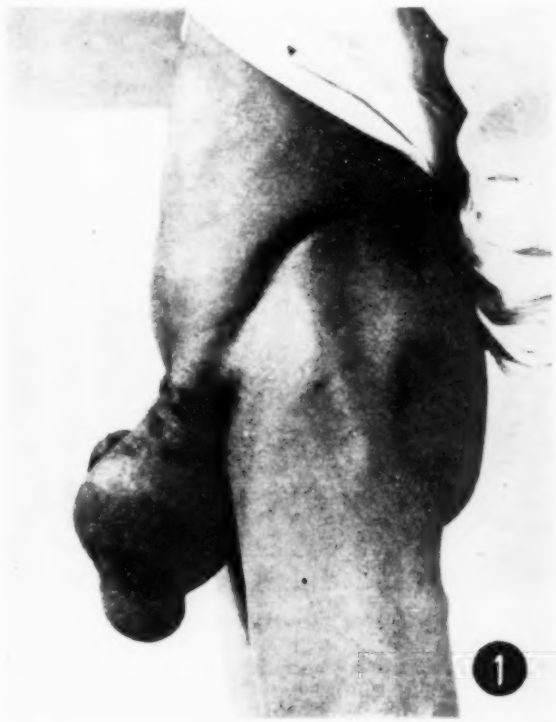
syphilis, which was treated 5 years previously by a series of injections. On examination there was a large soft cystic swelling, situated in the scrotum above the left testis (See Figs. 1 and 2). This swelling was continuous through the abdominal rings with a large soft cystic mass in the hypogastrium. Ballottement established the fact that the two



cysts communicated with one another. The abdominal mass could be felt above the prostate on rectal examination. The scrotal swelling was translucent. The Wassermann, Rappaport and Berger reactions were all strongly positive. The residual urine was 1 oz. Other clinical details are omitted as irrelevant.

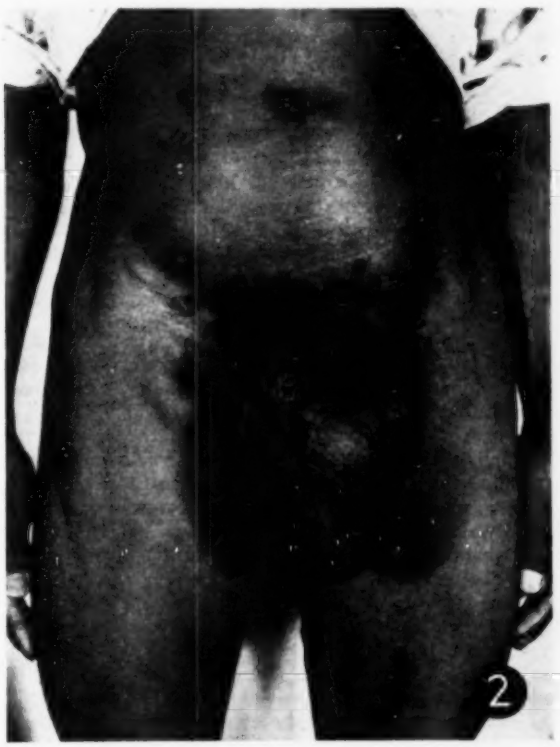
Onset of the swelling. About a month after the commencement of antisyphilitic treatment 5 years ago he noticed a small non-tender swelling in the left side of the scrotum. This increased rapidly in size and 8 weeks later it had attained its fullest dimensions. The abdominal swelling developed 3 weeks after the scrotal swelling and had been present without change for just under 5 years. There had been no pain.

Investigations. A cystogram revealed little abnormal, except for slight trabeculation and an indentation due to the intra-abdominal sac (Fig. 3).

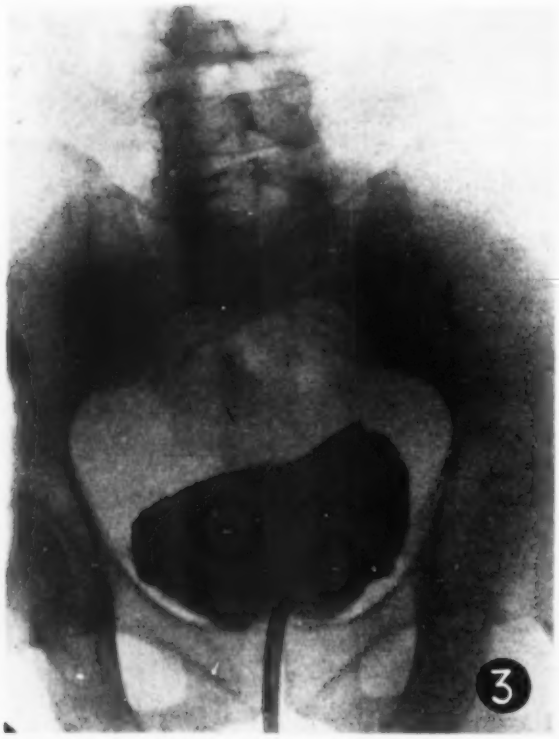
On 2 November 1947, 2 pints of clear straw-coloured fluid were evacuated and 2 pints of 2½% sodium iodide were introduced. An X-ray picture was then taken (Fig. 4).

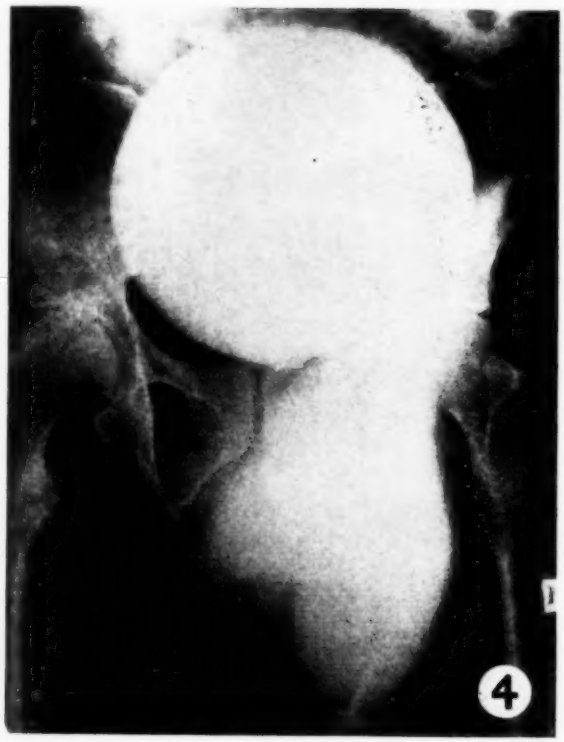
Operation, 5 November 1947. Through a median subumbilical incision the peritoneum was exposed but not incised, and the abdominal mass palpated. The peritoneum was then stripped upwards off the tumour with reasonable ease, but the mass could not be delivered until a tough thick fibrous layer had been incised and stripped off the cyst, leaving a thin glistening fluid-filled sac. This sac was then raised out of the wound with the hand, in much the same way as a large kidney is separated from its attachments and delivered. The investing fascia lay next to the peritoneum, separated from it by a layer of extra-peritoneal tissue. It was considered that it was a thickened portion of the fascia transversalis. The abdominal cyst having been delivered, the resultant large cavity was temporarily filled with moist hot packs and covered with a towel. Through a long left inguinal incision the scrotal sac was then exposed and freed from its coverings. It was emptied of its contents and the collapsed abdominal portion was drawn through a fairly small internal abdominal ring, and through a greatly enlarged external ring. The scrotal sac was finally freed from its lowest attachments. The collapsed cyst was adherent to the top of the epididymis and this attachment had to be divided with a knife.

The actual tunica vaginalis testis was accidentally opened and did not appear to communicate with the abdomino-scrotal cyst. The inguinal canal and dilated rings were repaired and both wounds closed with drainage. Recovery was uneventful.



The fluid originally aspirated from the scrotal sac was clear yellow and contained no clot, no blood, no spermatozoa and no organisms.





Histological examination of the cyst wall was not helpful as marked pressure atrophy had destroyed the epithelial lining, and all that could be seen was dense collagenous tissue with extensive chronic inflammatory cell infiltration.

DISCUSSION

Hopes had been entertained of demonstrating that this was an abdomino-scrotal spermatocele and not an ordinary abdomino-scrotal hydrocele. (Wakeley [23] described a spermatocele with an upward extension in a boy of 14, but it had not extended very far.) The intact tunica vaginalis testis, the attachment to the epididymis, and the entirely separate testis (see Fig. 1) suggest this. However, histological examination failed to reveal columnar epithelium, which would have been conclusive. The fluid, moreover, contained no spermatozoa, and the theory must be regarded as not proven.

As regards operative technique, it is contended that this case demonstrates the advisability of approaching these hydroceles through 2 incisions. Nothing is lost by such an approach, and if, as happened in this case, the abdominal cyst is closely invested by a dense fascia, 2 incisions may ensure that the operation is an easy surgical procedure rather than an unnecessarily difficult and bloody struggle.

I am indebted to Mr. L. B. Goldschmidt, then Head of the Department of Urology at Groote Schuur, for permission to publish the case and for his assistance, to Dr. G. Seltzer for her histological report, and to Mr. G. McManus, of the Department of Surgery, and Dr. J. de Villiers for the photographs.

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FIBROCYSTIC DISEASE OF THE PANCREAS

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Andersen [1] separated fibrocystic disease of the pancreas from the rest of the coeliac syndrome in 1938 and it is now a well-recognized entity, probably more common than coeliac disease itself. Her well-known description of the various ways in which the condition can present may be worth repeating.

1. As meconium-ileus. Inspissated meconium gives rise to intestinal obstruction soon after birth and death follows within a few days unless prevented by successful surgery.
2. As a respiratory infection which ends fatally in infants under the age of 6 months, accompanied on some occasions by a story of loose stools.
3. With signs suggestive of coeliac disease developing after the age of 6 months. The children in this group are also subject to respiratory infection, from which they succumb before many years have passed.

The distinction between groups 2 and 3 is not always clear cut and one group may merge into the other.

Some writers think the name given to the disease is not a satisfactory one, as it tends to focus attention on the intestinal aspect and overemphasizes the nutritional problem without mention of the constantly-present respiratory lesion (May and Lowe[2]).

Although the disease is clinically manifested only in the gastro-intestinal and respiratory systems, it is one which affects mucus-producing glands all over the body, and an alternative name suggested by Farber [3] is 'mucoviscidosis', but Bodian,[4] in a recent extensive monograph on the subject, feels that the name fibrocystic disease of the pancreas should be retained and the pathology defined as a 'mucosis'.

The pathology of the condition is complex and it is not intended to discuss it in this paper except to say that sticky, tenacious mucus is probably the primary cause of the clinical signs of the disease, particularly in the lungs, where obstruction gives rise to emphysema and bronchiolar dilatation, upon which infection is sooner or later superadded.

The purpose of this paper is to describe 4 cases which illustrate Andersen's description of the different ways in which the illness may show itself and to emphasize its familial nature. Some aspects of diagnosis and treatment are also considered.

CASE REPORTS

Case 1. F. B., a girl, was admitted to hospital (Groote Schuur) in 1948. All feeds since birth had been vomited and no meconium had been passed. Abdominal distension was noted on the 3rd day of life and an enema on this day was returned without faecal content. The baby was sent to hospital on the 4th day of life and intestinal obstruction was confirmed. X-rays showed a pneumoperitoneum with signs of fluid in the peritoneal cavity. The infant died 6 hours after admission before operation could be performed. Autopsy confirmed the diagnosis of meconium-ileus and peritonitis, a perforation being found in the mid-ileum. The meconium, which was soft and greenish in the region of the perforation, became whitish and sticky and then putty-like and hard in the more distal parts. It was only when the commencement of the transverse colon was reached that the meconium again appeared normal. Histology of the pancreas showed marked fibrosis. The lungs do not appear to have been examined histologically.

Case 2. K. B., a brother of F. B. above, was sent in in January 1953 at the age of 14 months. He was the 5th child in his family, F. B. having been the third. The other 3 children were said to be healthy. There was a history of persistent cough from 3 weeks of age with failure to thrive, though his appetite had always been good. From 6 weeks of age cyanosis and dyspnoea had been intermittently present and at the age of 6 months an attack of pneumonia was successfully treated. By 10 months the cough, dyspnoea and cyanosis had increased so much that he was admitted to another hospital, where X-rays of the chest were taken. Anti-tuberculous treatment was started, but without benefit and in fact, no tubercle bacilli were recovered from gastric washings and the Mantoux test was persistently negative. Penicillin, aureomycin and terramycin similarly failed to improve his condition and he was transferred to this hospital.

He was found to be cyanosed and very dyspnoeic, with signs of congestive cardiac failure. Digitalis and oxygen improved the heart condition, but fever and cough persisted and cyanosis returned if he was taken out of the oxygen tent. Chest X-rays showed diffuse, coarse, bilateral opacities. There was no faecal digestion of gelatin in dilutions of 1 in 3, 1 in 10, or 1 in 50, and the stools were bulky and foul-smelling. Despite aureomycin therapy, rhonchi and crepitations in the chest increased and he died 16 days after admission. At autopsy the pancreas appeared smaller than normal, with a granular feel, and pus was found in the bronchial passages. From the latter a pure growth of coagulase-positive *Staphylococcus aureus* was obtained. Histology revealed a moderate dilatation of the pancreatic acini with mucin in the ducts and a chronic suppurative pan-bronchiolitis.

Case 3. John H., aged 5 years, was admitted in August 1952 because of a persistent cough for 3 months and abnormal stools since birth. Since the cough had developed he had had several attacks of respiratory infection. From birth his stools had been bulky and offensive, but as his only sibling had similar stools the abnormality was not appreciated until he was over 1 year old.

He was a thin boy with a protruberant abdomen and flat buttocks (see Fig. 1). Early clubbing was present but the only abnormal physical signs in the chest were crepitations at the right apex and some decrease of breath sounds at the left base. Radiographs showed

lesions of a bronchopneumonic type in both lungs especially in the region of the right upper lobe.

Faecal suspensions in water diluted 1 in 3 and 1 in 25 failed to digest gelatin and no trypsin was found in the duodenal juice. The stools, smelling of bad cheese, were typical of the condition, and a pure growth of *S. aureus* was obtained from the sputum.

Aerosol administration of Tryptar, a trypsin preparation, was carried out for 12 days but did not appear to make the sputum any less tenacious and the boy was discharged after a month in hospital on a full diet with extra protein and vitamins plus a preparation of pancreatic granules.

Since discharge from hospital 12 months ago his general condition has remained good and he has gained 6 lbs. in weight. His abdomen is smaller and the stools are less bulky and less offensive. There have been no pneumonic episodes and antibiotics have quickly controlled any febrile attacks, but a recent X-ray (8 September 1953), shows persistence of the previously reported bronchopneumonic shadows.

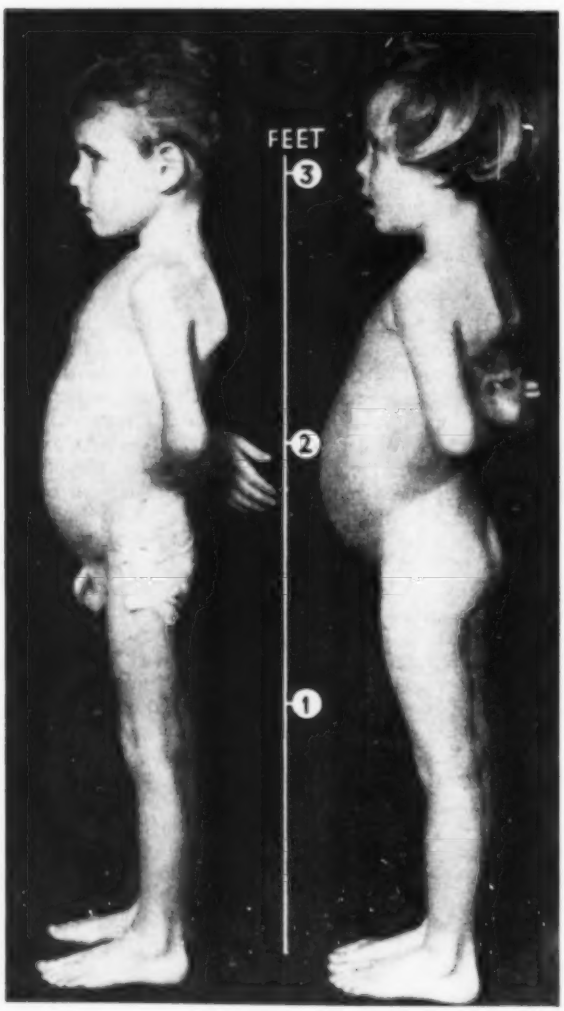

Fig. 1. John H., aged 5 years. Buttocks strapped for rectal prolapse. P. H., aged 6 years.
Note wasting, prominence of abdomen and small buttocks in each case.

Case 4. P. H., aged 6 years, the sister of John H., came to hospital shortly after her brother. She had had a cough for 5 years following pneumonia when 1 year old. She too was much underweight for her age and had clubbing of the fingers and toes. There was clinical evidence of pneumonia in the right upper lobe and X-rays showed bilateral bronchopneumonic-like shadows with the heaviest markings in the right upper zone. Trypsin was not found in either stools or duodenal juice. The character of the stools and the organisms in the sputum were the same as found in her brother and she was given the same treatment as well as antibiotics. On discharge her condition was essentially unchanged.

She has now been home for 12 months and it is said that there has been a slow deterioration with some loss of weight and rather more frequent febrile episodes. Her cough has persisted and the physical signs in the chest have apparently increased. A recent X-ray (8 September 1953) shows generalized mottled opacities with 'honeycombing' in the right upper and middle zones.

There would seem to be little doubt that both the last 2 children are suffering from fibrocystic disease of the pancreas.

FAMILIAL OCCURRENCE

In our cases 2 children were affected in each of 2 families. In the B. family 2 out of a total of 5 children suffered from the disease, while in the H. family there are only 2 living children both of whom have typical features of the complaint. Twin babies in the latter family died in the first week of life, and while the cause of death is uncertain there is nothing to suggest that it was due to meconium-ileus.

Examples of the occurrence of the disease in more than one member of a family have been described by several authors (Andersen and Hodges,[5] Macgregor and Rhaney,[6] Lowe *et al.*[7] and Bodian[4]). It is generally accepted that the condition is inherited as a simple recessive trait, both sexes being affected. If one child in a family suffers from the disease there is, therefore, a 1 in 4 chance that any subsequent child will also be affected.

A. MECONIUM-ILEUS: DIAGNOSIS AND TREATMENT

The new-born baby shows signs of intestinal obstruction and the only matter which may be passed by the rectum is a small quantity of white cheese-like material, the so-called meconium plug. If operation is performed, the lower ileum is found to be obstructed by masses of putty-like meconium, with distension and sometimes perforation above the site of obstruction. The abnormality of the meconium is believed to be brought about as a result of the unusual intestinal mucus secretion and not because of the deficiency of pancreatic enzymes in the intestinal tract.

Ileostomy followed by irrigation of the distal ileum with

solutions of pancreatin has been employed in an attempt to clear the bowel,[8] but the best results have been obtained by the method described by Hiatt and Wilson.[9] These authors recommend enterotomy and the milking out of the inspissated meconium, followed by the instillation of pancreatin solution and closure of the bowel. They report 4 recoveries out of 8 babies treated in this way.

It must, however, be realized that even if a baby recovers from this operation it is still liable to develop the later varieties of the disease, and Bodian[4] maintains that in cases where babies have died from meconium-ileus and autopsies have been performed histological examination of the respiratory tracts has invariably revealed evidence of the disease. This view is not shared by Baar,[10] who gives it as his opinion that there are no characteristic pulmonary changes in such cases.

B. LATER TYPES: DIAGNOSIS AND TREATMENT

The patients who present like coeliac disease differ from cases of that complaint in having a good appetite, evidence of respiratory disorders from an early age, and absence of trypsin in the duodenal juice.

Trypsin may be tested for in the stools by the gelatin-digestion method described first by Shwachman *et al.*[11] and later modified by Johnstone and Neter.[12] To carry out the test, drops of faeces of different dilutions are placed on unexposed X-ray film for 2 hours at room temperature. Trypsin in the specimens will digest the gelatin emulsion covering the film and will do this in dilutions of faeces up to 1 in 100. Johnstone and Neter point out that gelatin-liquefying bacteria may be present in the intestinal tract especially after the administration of penicillin. In cases of fibrocystic disease of the pancreas this resulted in gelatin digestion in 62% of cases when the faecal dilution was only 1 in 5. When the dilution was 1 in 25 this figure was 12% and when 1 in 100 only 3%. Urine also commonly contains these bacteria and contamination of the faecal specimen by urine must be avoided. When performing the test, faecal dilutions of 1 in 10 and 1 in 100 will, for practical purposes, overcome these possible sources of error, and non-digestion at the higher dilution will probably be due to lack of trypsin. Depression of pancreatic activity from any other cause, such as severe malnutrition or acute gastro-enteritis may also result in non-digestion of gelatin. All these facts must be borne in mind and the test used chiefly for screening purposes. A more satisfactory test is to obtain duodenal juice by intubation and to test this for its trypsin content. Even this test is not always diagnostic, Shwachman[13] having pointed out that trypsin is sometimes found in proved cases of fibrocystic disease of the pancreas. He believes that it is the abnormal viscosity of the fluid, as measured by the Ostwald viscometer, which confirms the diagnosis.

The presence of bile helps to confirm that the fluid obtained is from the duodenum but it is usual to test its pH at the bedside with an indicator, remembering that duodenal juice has a pH of about 6. Litmus, which only changes colour at about pH7, is not satisfactory and either Congo red or a universal indicator gives a better idea of the source of the fluid.

In some cases the lungs bear the brunt of the disease and there may be clinical signs of respiratory infection, radiographs often showing diffuse opacities somewhat resembling miliary tuberculosis. Sputum examination nearly always demonstrates the presence of a coagulase-positive *S. aureus*.

A child with history of loose stools and recurrent respiratory infection should at once be suspect, particularly if he has failed to thrive despite a good appetite. If in addition there are suggestive lung changes and absence of trypsin in the duodenal juice, a diagnosis of fibrocystic disease of the pancreas can confidently be made.

The disease, well known to paediatricians, is probably not very rare, and should be thought of in the presence of symptoms such as outlined above, especially as the condition may sometimes be diagnosed as some other respiratory disease, notably tuberculosis.

A well-balanced, high-calorie, high-vitamin diet is recommended, sufficient to satisfy the child's appetite, which is usually considerable. May[2] emphasizes that one must treat the child, not his stools and suggests a full diet. Many physicians, however, believe that some limitation of fat seems to control the frequency of stools and improves their consistency. Pancreatic extracts are commonly prescribed, though some doubt the efficacy or necessity of this form of treatment.

The chief object of treatment is not diet, but management of the recurrent lung infections. In 1946 di Sant' Agnese and Andersen[14] advocated intermittent courses of penicillin given both by injection and as an aerosol, but the present view is that the best results are obtained by prolonged courses of aureomycin or terramycin.[13]

Recent attempts to liquefy the sticky mucus in the respiratory tract by the use of a non-toxic detergent as an aerosol have been reported from the U.S.A.[15] and a simple nebulizing apparatus for this purpose has been designed by Miller,[16] but it is as yet too soon to assess the effect of this form of treatment.

It is probable that infection results in increased secretion of the viscid mucus previously mentioned, and it has been thought that a combination of a liquefying agent and one of the newer antibiotics may perhaps be effective in preventing infection and so aid in prolonging the lives of these children. Recent reports,[17, 18] however, have brought to light another disturbing factor, cases being described which have come to autopsy with evidence of cor pulmonale. Now that infections can be better controlled than in the past, it is thought possible that heart failure may supersede pulmonary infection as the chief cause of death, and the hopes of a cure of fibrocystic disease seem further away than ever.

SUMMARY

1. Four cases of fibrocystic disease of the pancreas are described to illustrate the ways in which the disease may present and to show that more than one member of a family may be affected.

2. Reports from the literature indicate that the condition is transmitted as a simple recessive trait.

3. Points in the diagnosis and treatment are discussed and reference is made to a method which attempts to liquefy the tenacious mucus in the respiratory tract.

4. Cor pulmonale is mentioned as an additional complication.

Thanks are due to Dr. J. Wolf Rabkin, Head of the Department of Paediatrics of Groote Schuur Hospital, for permission to publish this report; to Dr. R. F. Maggs, who sent the H. children into hospital, for information concerning their previous history and course since leaving hospital; and to Mr. B. Todt for the photograph.

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BRONCHOGENIC CARCINOMA

A COMMENTARY ON AN ARTICLE* BY DAVID ADLER, M.B., F.R.C.S. (EDIN.) AND DENIS FULLER, F.R.C.S. (ENG.)

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I had the pleasure of hearing Mr. Adler read his excellent paper, which is the subject of the article by himself and Mr. Fuller in the *Journal* of 26 September and 3 October 1953. It may be of some interest to discuss the points raised, particularly in relation to the place of radiotherapy in carcinoma of the bronchus.

The authors state that the operative mortality rate is now less than 10%, and they claim that the gross 5-year survival rate of all cases seen is 7.7%. The figures from other leading surgeons are not so favourable.

Sir Clement Price Thomas's figures[1] are only 2.0–2.5% of all cases presenting for treatment and Borrie[2] claims only 20% 3-year survival in the 19% resection cases out of 1,800 patients, i.e. 3.8% 3-year survival of all cases seen.

The figures quoted from the various American and British authors do not provide all the information one would like to have. The percentage of the cases resected after exploration by the authorities quoted is still only an average of 56% though only 15–20% of cases seen are suitable for exploration. The authors do not indicate what is the fate of the patients who are explored and not resected. Does the exploration without resection adversely affect the period of survival? Alwin[3] states, 'There is considerable risk of vascular dissemination which occurs in a high proportion of cases.' What is the fate of the cases not explored? How does this compare with the survival rate after radiotherapy or surgery, or surgery and post-operative radiotherapy, or pre-operative radiotherapy and surgery?

Buchberg *et al.*[4] attempt to answer some of these questions. They analysed 443 individual case-records of fatal cases at the Montefiore Hospital which were not treated at all, including autopsy protocols of 330, and state, 'We believe in the vast majority of the individuals of the bronchogenic carcinoma, certainly the anaplastic form, lung resection is not the answer, regardless how soon the condition is diagnosed and treated.'

They quote the figures of a collected series of 7,815 patients with bronchogenic carcinoma reported from the leading medical centres in the United States and England, probably representing the best obtainable with surgical treatment of bronchogenic carcinoma, and state, 'Only approximately one-third were considered operable.' In half of these operable cases the tumour was found non-resectable; that is, only about 16% were resectable. Of the total in the resectable group of 1,239, there were 72 or 5.8% who lived 5 years or longer. Thus the 5-year survivals constitute less than 1% of the original group of patients. There is a big discrepancy between this and the figure of survival rate of 7.7% quoted by Adler and Fuller.

In contrast, of the 433 patients who died of carcinoma of the lung at the Montefiore Hospital without treatment (see above), 8, or 2%, lived 5 years or longer.

Buchberg *et al.* point out that this cannot be construed to mean that an individual with bronchogenic carcinoma has a better chance of survival if he is left alone. On the contrary, pneumonectomy in selected cases, offers a much better prospect of living. They stress, and one must agree with them, that it is the selection of cases which is essential for good results.

Adler and Fuller state that of 100 cases 25% were explored and 14% were resected. They state that 28 of their more recent cases were treated with X-ray therapy, but do not indicate whether these were non-resectable cases or unexplored cases, or whether the X-ray treatment was given in some cases after resection. What happened to those cases which were neither treated surgically nor by radiation? Were these cases all too ill to be given radiotherapy? The authors are prepared to explore the cases, yet few of the inoperable cases which were not explored were given an opportunity of improvement with radiotherapy.

This is in striking contrast to the attitude of Mason[5] who states, 'X-ray treatment is given to the patients who decline operation or who are unsuited for it, and to those whose growth is found to be inoperable on exploration, to all cases of undifferentiated growth, whether operated on or not, and to those cases in which growth is present and the glands are removed at the operation.' His figures for cases treated with radiotherapy are as follows: 42 out of 445 treated with radiotherapy survived from 5 months to 5½ years, including 2 out of 113 alive for 5 years, and 6 out of 125 alive for 2–3 years.

At the Post-Graduate Hospital, in London, X-ray therapy has been employed as a pre- and post-operative measure for more than 3 years. The statistics are not yet available.

Fulton[6] analysed a large series of cases seen at the Radium Institute, Liverpool. He gives the following figures for 1,378 cases:

* S. Afr. Med. J., **27**, 841 and 874.

		Number	*Average Survival (Months)*
Untreated cases		915	7.6
Treated cases:			
Nitrogen mustard ...	12		5.5
Palliative surgery (i.e. exploratory)	37		9.4
Palliative X-ray	199		9.0
Radical surgery	25		11.5
Radical X-ray	190		14.7
		463	
	Total	1,378	

It appears from these figures that palliative X-ray is as good as the palliative surgery, although a larger number of cases by far has been treated with palliative X-ray, and it must be recalled that the cases treated with X-ray are always in worse condition than the cases treated by surgery; and that in a much larger group (190 cases) treated with radical X-ray there was a better survival period (14.7 months) than in those (25 cases) treated with radical surgery (11.5 months).

Fulton, too, it will be noted, no doubt influenced by his knowledge of carcinoma of the breast, has divided his cases into 4 stages, and only the first two stages, comprising 12.4% of all of the 1,610 cases seen, would have been suitable for radical surgery.

The authors have quoted Fulton as stating that 'radical surgical removal is the method of choice, but that the closest collaboration between the thoracic surgeon and the radiotherapist is essential in this field.' I have no doubt that it was only consideration of space which which prevented the authors from quoting him more extensively. Fulton goes on to say, 'On the other hand the thoracic surgeon must, so far as is possible, refrain from opening a chest when the probability of being able to proceed with radical surgery is seriously in doubt. In such a case the chances of effective treatment by radiotherapy are delayed and seriously jeopardized.'

The results of post-operative radiotherapy in Borrie's series did not make any material difference to the survival rate. It is noted, however, that of the patients treated, no less than 45% were of the undifferentiated type with lymph-node invasion, hopeless material at the best of times, particularly after being subjected to a pneumonectomy.

The difficulty appears to be to determine beforehand which cases will prove resectable. There does not appear to be the same facilities for 'staging' patients as there are in breast carcinoma, and even in a superficial organ like the breast, staging is not an easy matter, because of the difficulty of determining whether axillary and mediastinal glands are present or not. No surgeon would do a radical operation on the breast if he knew that mediastinal glands were already present. The difficulties of determining the presence of mediastinal glands are not minimized, and its importance cannot be overstressed.

Fulton [6] and Thomas [1] have given some criteria for inoperability in bronchial carcinoma. Neuhof and Ausses [7] have also made an attempt at a topographical classification and to establish indication for operability. Adams [8] states, 'The absence of demonstrable involved nodes increases threefold a patient's chance of being alive and well 5 years after resection; for shorter periods the difference of outlook is even more striking.' He stresses that in the surgical attack upon pulmonary cancer the presence or absence of involved lymph nodes is a preponderant if not a determinant consideration. The individual patient's chance of long survival depends on the presence or absence of involved nodes, as it does in breast cancer.

Borrie's [2] figures do not confirm this, for in his series the cases with more than one lymph node involved lived longer than those with only one lymph node involvement. One must nevertheless accept Adams' figures. Borrie, however, stresses the importance of early blood-stream spread, and also the great value of deep therapy in easing certain symptoms, such as those arising from re-aeration of a collapsed lung or from superior mediastinal obstruction, and in relieving pain.

More accurate 'staging' has prevented many an inoperable case from having a radical breast operation, the only effect of which would have been to hasten the patient's death. It is for this reason that McWhirter's views [14, 15] have steadily gained ground in the last 3 years. In 1950, at the 6th International Radiological Congress, one found few people in England and on the Continent, accepting them. In 1953, at the 7th Congress, there were many more who did so, or who were testing, case for case, the radical and the McWhirter techniques.

It is suggested that, if it were possible to 'stage' carcinoma of the lung by studying the mediastinum more closely, and by establishing a more accurate index of operability, such as the Lee and Strubenford [9] or Richards [10] formula for carcinoma of the breast, which take into consideration such relevant factors as the histology and so on, fewer cases would be explored, and a larger percentage of explored cases would be resectable. In Fulton's large series, only 12.4% would have been explored.

A larger percentage of the unexplored cases would be given the opportunity of radiotherapy. It is accepted that an operation on the breast which is beyond Stage 2 (McWhirter and Manchester) does not merely do the patient no good; it hastens her death. Is it not possible that exploration of bronchial carcinoma which does not fall within the resectable group also hastens the patient's death?

Messrs. Adler and Fuller approve of radiotherapy as a method of palliation.

RADIOTHERAPY TECHNIQUE

Some techniques of X-ray therapy such as super-voltage methods, rotation and pendulum or arc methods, still await evaluation and are not yet generally available either in South Africa or elsewhere. Multiple fields and grid techniques are however available. Aplied carefully, they will not expose the patient to any risks because, unlike surgery, X-ray therapy can be stopped if the patient does not improve or gets worse. Moreover, if begun in small doses and increased cautiously (with the administration of antibiotics), they will not make the patient worse. There is no manipulation in radiotherapy which may spread the disease.

Messrs. Adler and Fuller mention the use of radium implanted through a bronchoscope. Radium as an implant cannot be recommended, and I am not aware of anybody who uses it anywhere at present. The trauma and risk of haemorrhage associated with the insertion of radium needles and their removal are contra-indications. The risk that a radium needle may migrate into the lung is also a contra-indication.

The position is entirely different with the implantation of radon. For the last 3 years or so I have been able to make arrangements for radon to be sent here from Amersham on request, and with the introduction of the wing-tip scheme, the expense has recently been greatly reduced. Even now a week or two's notice is required, depending on the available wing-tip space. Ordinarily, therefore, radon will not be available at the time a surgeon does a thoracotomy and finds the condition inoperable unless, of course, he has waited until its arrival. As Messrs. Adler and Fuller point out, it may be used to implant malignant glands or the growth itself.

Another method, and the one more frequently employed, is to implant the radon through the bronchoscope. This method, because of the greater availability of X-ray therapy and the emphasis placed on radiation physics, is not so frequently used as formerly, but it is apparently coming into favour again. It was criticized because the distribution of the radiation from implanted radon did not come up to theoretical requirements, and the lateral periphery of the tumour received an inadequate dose of radiation. There is, however, no reason why, in suitable cases, radon implantation should not be supplemented by deep X-ray therapy and in fact this is being done. It is to be remembered, too, that the method is used in inoperable cases for palliation only. Professor Ormerod [11] and Professor D. W. Smithers state (personal communications) that more cases are being treated in this way.

Ormerod [11] analyses 100 cases and reports long survivals, 3 over 10 years, 4 over 5 years, and 5 over 4 years. This is remarkable when it is recalled that the method is only used in inoperable cases and cases frequently too ill for prolonged X-ray therapy. In 1950 a case was reported by Windeyer [12]

of a squamous carcinoma which had then survived over 13 years after radon insertion.

The procedure is simple. Ormerod implants the radon in the operating theatre, but I feel that a better distribution may be obtained by implanting the seeds under screen-control in the X-ray room. Small as they are (5 x 1.3 mm.), they can be seen on screening. They are a permanent implant, there is much less risk of haemorrhage than with radium needles, and no harm results from their migration.

Cases not fit for prolonged X-ray therapy can be treated by radon implantation, which involves staying in the nursing home for a day or two only.

The use of radio-active gold intrapleurally and intraperitoneally to diminish or retard malignant effusions, is now also a standard procedure. There is no difficulty in obtaining radio-active gold in South Africa, even though it has a short half-life of 2.8 days.

Taking the usual precautions of watching the blood counts and the general condition of the patient, we have not noted any severe side effects from this form of treatment, and the retardation of fluid formation has resulted in striking improvement in cases of various types of malignant effusions.

Messrs. Adler and Fuller advocate resection as a method of palliation. It would appear that in the various forms of radio-therapy, one has equally good if not better methods of palliation without submitting the patient to operations with all their associated disadvantages, and the risk of spreading the disease.

They point out that the 5-year survival-rate which they quoted (7.7%) is greater than that for gastric carcinoma, although the first pneumonectomy was only done some 20 years ago. Surgery for gastric carcinoma has, of course, been practised by many thousands of able and distinguished surgeons for far longer without improvement in the results. It is therefore to be expected that the graph of improvement in the surgery of carcinoma of the bronchus will also flatten out, even though the steep rise of the last 20 years has not yet reached its peak. The reasons for the poor results do not rest with the surgeon, and it is therefore unlikely that greatly improved results are to be expected from surgery alone.

The difficulty under present conditions is to establish which cases are really operable, and it would appear from the literature that too high a percentage of inoperable cases are explored. I venture to suggest that until this figure can be reduced by earlier attendance of cases and by better methods of investigating the mediastinum to determine vascular spread, carcinoma of the lung will remain more a radiotherapeutic problem than a surgical problem. (In regard to vascular spread, Steinberg and Dotter [16] state that in 87 of 100 patients with lung cancer there was evidence of vascular abnormality as the result of the tumour; and that 43 of the cases showed vascular deformities pointing towards a diagnosis of inoperability.) Moreover, in my opinion radiotherapy technique is more likely to improve in the future than surgical technique, possibly with the use of sensitizers and mitotic inhibitors.[15]

Messrs. Adler and Fuller are to be congratulated on their presentation of this difficult subject, illustrated by so many excellent radiographs and charts, and their article should be of value to the general practitioner as well as the specialist.

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PASSING EVENTS : IN DIE VERBYGAAN

Dr. Benjamin Chesler has commenced practice as a Phychiatrist at 42 Pasteur Chambers, Jeppe Street, Johannesburg.

UNION OF SOUTH AFRICA DEPARTMENT OF HEALTH

Bulletin covering the seven days ended Thursday, 5 November 1953.

Plague and Smallpox: Nil.

Typhus Fever. Cape Province: One (1) Native case at Haydenpark in the Queenstown district. Diagnosis confirmed by laboratory tests. No further cases have been reported from the Umtata district since the notification of 8 October 1953. This area is now regarded as free from infection.

CAPE TOWN PAEDIATRIC GROUP

The next meeting of the Cape Town Paediatric Group will be held in the Falconer Lecture Theatre, E Floor, Groote Schuur Hospital, on Friday, 4 December, at 8.15 p.m. Dr. T. B. McMurray will speak on "The examination of the hip joint in children". A film to illustrate the lecture will be shown. Interested practitioners are cordially invited to attend.

REVIEWS OF BOOKS : BOEKRESENSIES

WARTIME MEDICAL RESEARCH

Medical Research. Edited by F. H. K. Green, *C.B.E.*, M.D., F.R.C.P. and Major-General Sir Gordon Covell, *C.I.E.*, M.D., D.T.M. & H., D.P.H., I.M.S. (Ret.) (Pp. 387. 40s.) London: Her Majesty's Stationery Office. 1953.

Contents: 1. Organization. 2. The Safety and Efficiency of the Fighting Man. 3. Wounds and Injuries. 4. War Diseases. 5. Nutrition and Malnutrition. 6. Public Health. 7. Sulphonamides and the Development of Penicillin. 8. Industrial Health. 9. Biochemical Research. 10. Chemical Defence Research. 11. The Biological Effects of Explosions. Appendix I. War-Time Committees of the Medical Research Council. Appendix II. The Flying Personnel Research Committee of the Air Ministry. Index.

When a war breaks out, especially a world war, gaps in our medical knowledge become urgently patent and researches are immediately instituted to solve a host of problems. There is the question of feeding the nation and its army. The good general state of health of the people of Britain at the end of a 5-years' blockade was achieved by a great deal of research, thought and organization. Take only the question of bread: what were going to be the consequences of increasing flour extraction from 70% to 85%, was the presence of previously discarded vitamins going to be counterbalanced by the possible interference with calcium absorption because of phytic acid? to say nothing of an altogether different problem, the fact that such a change would greatly diminish the available fodder for cattle.

Fighting took place in disease-infested jungles. What are the best prophylactic measures against, and what the best treatment for, the different diseases to which the troops are

exposed? To make matters worse, in this war there was the loss of the main sources of quinine for malaria. A vast search took place for anti-malarial remedies, and we saw remarkable results from the introduction of D.D.T. and Gammexane. The effects of these insecticides was perhaps best seen in the miraculous checking of the epidemic of typhus in Naples.

In a war which took men to all parts of the world, the tropics, the desert, the Norwegian seas, into the air, and under the water we suddenly find that there is a great deal we do not know about the physiology of living under these different conditions. All kinds of injuries and their consequences need studying—burns, scalds, frost-bite, immersion, blast, shock, gas gangrene, to mention only a few. Through the study of the treatment of vesicants came the discovery of B.A.L.

There are the innumerable problems associated with the question of industrial health, and researches into suitability for the different services.

A momentous step was the introduction of Chromatography as a new tool in laboratory technique.

To quote from the book itself: "The greatest triumph of medical research during the war was undoubtedly the development of penicillin as a medicinal agent. It has revolutionized the outlook in wound and other infections and inaugurated a new era in therapeutics."

And after the war came the study of malnutrition in the peoples of the occupied countries, in prisoners of war and the inmates of concentration camps.

These are some of the medical aspects of the war dealt with in this volume and we are told who the people are who were concerned in the various researches.

DISEASES OF THE HEART AND BLOOD VESSELS

Nomenclature and Criteria for the Diagnosis of the Diseases of the Heart and Blood Vessels. Fifth Edition. (Pp. 360, with illustrations. $5.95.) New York: American Heart Association. 1953.

A new fifth edition, the first since 1939, is a completely revised and greatly expanded monograph. It is intended primarily to clarify and standardize diagnostic criteria for cardiovascular diseases, but it contains in concise form a mine of information on the subject. It has been a standard work in America for the use of cardiologists, internists, general practitioners, medical students, interns and residents from its first appearance in 1929. All editions have been prepared by the Criteria Committee of the New York Heart Association under the chairmanship of Dr. Harold E. B. Pardee. For the first time, the new edition contains a section on the diseases of the peripheral circulation. There have been extensive revisions and additions to the sections on electrocardiography, radiology and the diagnosis of congenital heart disease and rheumatic heart disease. A new table of functional and therapeutic classification appears.

The book can be obtained directly from the American Heart Association, 44 East 23rd Street, New York 10, N.Y., U.S.A.

FILMS IN CARDIOVASCULAR DISEASES

Films in the Cardiovascular Diseases : Survey, Analysis and Conclusions. (Pp. 128. Cloth cover $2.00; paper cover $1.50.) New York: New York Heart Association. 1953.

This monograph, prepared by the staff of the Medical Audio-Visual Institute of the Association of American Medical Colleges, is published jointly with the American Heart Association. It includes detailed, critical reviews of 62 medical motion-pictures on cardiovascular subjects and lists an additional 118 films in this field. There are thorough discussions of such topics as the methodology of evaluating medical motion-pictures, the present status and future opportunities for medical motion pictures in cardiology, information about the distribution of medical films, lists of sources of films or of information about films, suggestions regarding the use of films for teaching purposes—in brief, this is the most complete source of information about medical motion-pictures on cardiovascular subjects now extant.

The book can be obtained from the American Heart Association.

HISTOLOGY

Textbook of Histology. By José F. Nonidez, D.Sc. and William F. Windle, Ph.D., Sc.D. (Pp. 528 + xv, with 326 illustrations. Second Edition. $9.50.) New York: McGraw-Hill International Corporation, 1953.

Contents: Prefaces. 1. Tissues and Methods for their Study. 2. Cells, Living Components of Tissues. 3. Epithelium. 4. Blood and Lymph. 5. Bone Marrow and Hemopoiesis. 6. Connective Tissue. 7. Cartilage, Bone and Joints. 8. Muscular Tissue. 9. Heart. 10. Blood Vessels and Lymphatic Vessels. 11. Lymphatic Tissue and Organs. 12. Nervous Tissue. 13. The Peripheral Nervous System. 14. Brain and Spinal Cord. 15. Membranes of the Brain and Other Organs. 16. Visual and Auditory Organs. 17. Integument. 18. Mouth and Pharynx. 19. Tubular Digestive Organs. 20. Liver and Pancreas. 21. Endocrine Organs. 22. Respiratory Organs. 23. Excretory Organs. 24. Male Reproductory Organs. 25. Female Reproductory Organs. 26. Mammary Glands. Appendices. Index.

Professor Nonidez, a member of the famous Spanish school of histologists and a pupil of Ramon y Cajal, had planned to write a text-book dealing essentially with the histology of the fundamental tissues. To this end he had prepared, over many years, beautiful 'wash' drawings to illustrate his book. Unfortunately, through his untimely death, the manuscript was never completed and it fell to Dr. Windle to assemble in book form the work so admirably begun by Professor Nonidez.

This text-book deals in an orthodox fashion with the elements of histology. At intervals throughout the text correlations are made between the minute structure of the tissue and established physiological concepts. The book is well illustrated with instructive photomicrographs and, in accordance with the tradition of the Spanish school, the illustrations of some aspects of the nervous system are an outstanding feature. A valuable inclusion in the book, as far as teachers in this country are concerned, is the comprehensive list of excellent films designed to illustrate aspects of histology and embryology. The book can be recommended as a useful introduction to the subject of histology for medical, dental and biology students.

YEAR BOOK OF ENDOCRINOLOGY

The 1952 Year Book of Endocrinology. Edited by Gilbert S. Gordan, M.D., Ph.D. (Pp. 400 with 107 illustrations. $5.50.) Chicago: Year Book Publishers, Inc. 1953.

Contents: Introduction. I. The Pituitary Gland. 1. Adenohypophysis. 2. Neurohypophysis and Water Metabolism. II. The Thyroid Gland. 1. General Considerations. 2. Hypothyroidism. 3. Hyperthyroidism. 4. Antithyroid Drugs. 5. Nodular Goiter, Cancer and Thyroiditis. III. The Parathyroids, Calcium Metabolism and Metabolic Bone Diseases. 1. Hypoparathyroidism. 2. Hyperparathyroidism. 3. Other Disorders of Calcium Metabolism. IV. The Adrenal Medulla. V. The Adrenal Cortex. 1. Physiology and Tests of Function. 2. Adrenalectomy. 3. Addison's Disease. 4. Hyperfunction (Congenital Hyperplasia, Cushing's Syndrome, Androgenic Excess). VI. Cortisone, Corticotrophin and Allied Compounds. 1. Chemistry and Physiology. 2. Adverse Effects. 3. Rheumatic Diseases. 4. Disseminated Lupus Erythematosus. 5. Central Nervous System. 6. Hematologic Disorders. 7. Nephrosis. 8. Pulmonary Disorders. 9. Miscellaneous Disorders. VII. Sexual Precocity. VIII. Female Reproductive System. 1. General Considerations. 2. The Stein-Leventhal Syndrome. 3. Ovarian Agenesis. 4. Estrogens. 5. Progesterone. IX. The Testes. 1. Spermatogenesis. 2. Testicular Hormones. 3. Miscellaneous. X. Carbohydrate Metabolism. 1. General Aspects. 2. Complications of Diabetes. 3. Insulin. XI. Endocrine Treatment of Neoplastic Diseases. 1. Advanced Mammary Cancer. 2. Advanced Prostatic Cancer. Miscellaneous.

The 1952 Year Book of Endocrinology maintains the standard of preceding issues and is again under the able editorial pen of G. S. Gordan. A comprehensive range of papers, including a few Continental reports, is covered. The selection appears on the whole to be well balanced.

Almost one-third of the text is devoted to the adrenal glands and cortisone and corticotrophin. The shortcomings of the tests of adrenal function are apparent. This section comprises 55 pages and the scope of action, the limitations, and the dangers attending their use are covered. As the Editor remarks, 'their proper use is limited to conditions in which the therapeutic benefits will outweigh the pharmacological hazards'.

The remaining chapters cover their sections adequately. The laboratory diagnosis of thyroid disease is still not satisfactory. It is refreshing to find that the clinical aspects of endocrine disease are well represented in this volume.

The text is clear, the reproduction of photographs on the whole good, and the charts selected informative. The Editor's comments are to the point.

In view of the spectacular growth of endocrinology this *Year Book* will be of great value to the busy physician who must keep abreast of recent developments.

PROBLEMS OF FERTILITY

Proceedings of the Society for the Study of Fertility. Number IV. London Conference, 1952. (Pp. 63, with figures. 10s.) Cambridge: W. Heffer & Sons Ltd.

Contents: 1. Early Death of the Egg and Embryo in the Aplacental Opossum. 2. The Cellular Components of the Ovary. 3. The Effect of Intelligence upon Fertility. 4. Mammalian Spermatogenesis. 5. The Morphology of Fowl Sperm. 6. Some Observations on the Morphology of Fowl Spermatozoa. 7. Some Observations on the Morphology of Spermatozoa by Electron Microscopy. 8. Electron Microscope Studies on the Morphology of Human Spermatozoa. 9. Azoospermia of Excretory Origin. 10. The Morphology of Human Spermatozoa in Relation to Fertility. 11. The Blood Supply of the Rat Epididymis. The Experimental Effects of Certain Arterial Ligations and their Relation to the Problems of Infertility. 12. An Artificial Spermatocele. 13. The Effects of 'Asperm' Virus upon Nuclear Behaviour in Certain Solanaceous Plants. 14. The Rôle of Modern Antibiotics in the Treatment of Infertility. 15. Do Operations on the Cervix Influence Sterility?

Most of the investigations reported in this volume have been carried out on animals. Nevertheless, important aspects of clinical investigations are not neglected. For instance, Dr. Mary Barton reports on the successful use of chloramphenicol and aureomycin in cases of cervical block due to profuse secretion of cervical mucus associated with a local infective condition.

Five papers deal with the morphology of spermatozoa. Perhaps the most interesting of these is the one on the structure of developing sperm of rodents as revealed by electron microscopy. Of special interest is the description of the development of the mid-piece spiral from mitochondria of the spermatid cytoplasm.

As one author points out, these electron microscope researches open an immense field to the morphologist and there is no doubt that the pathologist and the physician will eventually reap the benefit.

Professor Zuckerman reviews the cellular components of the ovary particularly from the point of view of their plasticity. His own work on the rat leads him to conclude that no new ova are formed from the germinal epithelium in the adult. Oogenesis ceases before puberty is reached and the female mammal enters her reproductive life furnished with a finite number of eggs which go on decreasing with age. The function of the germinal epithelium, which is a highly phagocytic tissue, is mainly protective.

Everyone concerned with problems of fertility can learn something from this book and it can be recommended as an excellent survey of recent work on the subject.

NUFFIELD FOUNDATION

The Nuffield Foundation Eighth Report (for the Year Ended 31 March 1953). (Pp. 109.) Oxford: University Press, 1953.

Contents: Introduction. 1. Research in the United Kingdom. 2. Oliver Bird Fund. 3. Research Overseas Within the Commonwealth. 4. Research into Practical Problems. 5. Fellowships, Scholarships, and Similar Awards. 6. The Care of Old People. 7. Miscellaneous Projects. Appendixes.

This, the Eighth Report of the Nuffield Foundation, shows how widely and wisely the Trustees have allocated the funds at their disposal, the research projects supported ranging from the provision of a radio-telescope to the investigation of the blood of the Andaman Islanders.

During the year under review £713,696 was distributed. By far the largest award (£225,000) was to the care of old people. This was given largely to support voluntary homes through the National Corporation for the Care of Old People. In addition, funds were made available for research on ageing and for research fellowships, appointments to which have just been announced.

The other allocations are listed above. In the United Kingdom the 'Free Fund', a sum of money uncommitted and available to support work of special merit, was awarded in the field of physics. About half of the funds allocated in the United Kingdom was for biological research and covered a very wide field in both animal and plant physiology, biochemistry and pathology. £26,400 was awarded for research in the Commonwealth, South Africa having benefited greatly from this. Among the projects supported was that of geological research at the University of Cape Town, the study of fresh water fish at Rhodes University, the investigation of nitrogen metabolism in leguminous plants at the University of Pretoria and of geo-chemistry at the University of the Witwatersrand.

Fifty-four fellowships or scholarships were awarded. These were in medical and dental subjects, for farmers both from the United Kingdom and also from Southern Rhodesia, Australia, Canada and New Zealand, and for civil servants, engineers and students in the humanities and social sciences.

£54,460 was allocated to social studies in the United Kingdom including grants to the National Institute of Economic and Social Research, the Faculty of Social Study at Oxford and the Population Investigation Committee. From the Oliver Bird Fund for rheumatism, the grants were mainly for work on the adrenal corticosteroids.

The grants listed above cover only part of the activities of the Foundation but considerations of space do not allow of a further mention of others.

In the preface Rockefeller's principle, 'Nothing great as great begins', is quoted, and has been followed as a matter of policy, small initial grants to projects being followed by larger ones as the research expands. The writers of this report have some interesting things to say on the difficulty of judging research ideas and the ability of research workers, and the length of time that must be spent on this in order that the awards can be most effectively used, but confess that it is a 'rewarding responsibility'. A perusal of the report shows beyond any manner of doubt that the hard work put in by the Trustees in deciding how to allocate their funds has indeed been used to good purpose. The Report is a magnificent record of philanthropy at its highest level.

BRITISH SURGICAL PRACTICE 1952

British Surgical Practice: Surgical Progress 1952. Edited by Sir Ernest Rock Carling, F.R.C.S., F.R.C.P. and Sir James Paterson Ross, *K.C.V.O.*, M.S., F.R.C.S. (Pp. 340 - vii with Figures.) London: Butterworth and Co. (Publishers) Limited. South African representatives Butterworth & Co., Durban, 1953.

Contents: *Part I. Original Articles*. 1. Arthritis—Surgical Treatment of Chronic Arthritis. 2. Burns—Treatment of. 3. Exophthalmos, Malignant. 4. Heart Surgery. 5. Rectum—Restorative Resection of. 6. Stomach—Vascular Supply of in Relation to Gastric Ulcer. *Part II. Critical Surveys*. 7. Anaesthesia. 8. Blood Pressure—Treatment of Hypertension. 9. Brain—Pre-Frontal Leucotomy. 10. Intestines. 11. Vascular Surgery—Chronic Oedema of the Leg. *Part III. Abstracts*. 12. Adrenal Glands—Yawn Noter-Up, 1952. Index.

This volume comprises a series of excellent original articles and critical surveys bringing up-to-date the latest advances in Surgery. It is in keeping with the high standard of the original volumes of *British Surgical Practice*. Both the quality of the production and its contents maintain the same tradition.

The recent improvement in the treatment of burns can be said to be due to three main factors: (1) the realization of the importance of adequate fluid and plasma replacement during the first 24 hours, (2) the value of early skin-grafting, (3) antibiotic administration and the minimization of infection. These are stressed and discussed in this section by the author who was so largely responsible for the reawakening of the 'exposure' method of treatment. This section might well be abstracted for the instruction of all house surgeons and others dealing with the burnt child.

During recent years there has been a renewed and widespread interest in those operations for rectal cancer which, although radical, preserve the function of normal defaecation. Restorative resection is an excellent operation but it is justified

only if it is confined to carefully selected cases. The various criteria for restorative resection are fully discussed and stressed. Nevertheless the reviewer could not help feeling that the author of this section regards the operation as unjustifiable, although a permanent colostomy remains a hardship. However, he recommends that a palliative resection is strongly indicated when hepatic metastases make the patient's death inevitable.

Malignant exophthalmos is not a common condition, but a classification of the several types is sorely needed in addition to the evaluation of the different aspects of treatment. There is much to be added to this story and the further elaboration of cortisone and its allies may yet aid this distressing condition.

Throughout the volume the high standard one expects is maintained. The critical surveys on heart surgery and chronic oedema retain a true perspective, a feature common to every article. The reviewer looks forward to the next volume.

A.K.

ADVICE TO THE EXPECTANT MOTHER

Advice to the Expectant Mother on the Care of Her Health and That of Her Child by F. J. Browne, M.D. D.Sc., F.R.C.S.E., F.R.C.O.G. Tenth Edition. (Pp. 48. 1s. 0d.) Edinburgh: E. & S. Livingstone Limited. 1953.

Contents: 1. Benefits of Antenatal Care. 2. Normal Pregnancy. 3. Hygiene of Pregnancy. 4. Common Disorders of Pregnancy and their Treatment. 5. Explanation of Pregnancy and Labour. 6. Preparations for Confinement. 7. Hints on Breast Feeding and Care of the Baby.

The fact that Professor Browne's booklet has reached its 10th edition shows the useful purpose which it serves. In it he succeeds in giving advice to the mother in a very acceptable form. All the points which it is desirable for parents, both prospective and actual, to know, are dealt with. It has all been said before but cannot be repeated too often.

Generally, books of this kind directly addressed to the lay public are written by persons lower in the professional grade than Professor Browne, and coming from a man of his standing, the advice given will probably be accepted with greater readiness by the public for whom it is intended.

It will also fulfil a useful purpose if read by the midwife and medical student, and even by the general practitioner, as it may serve as a reminder that these apparently simple matters may be unknown to their patients and yet the knowledge of them by such patients is so important that an eminent obstetrician has written a book of this kind.

The chapter on breast feeding is specially welcome as the present-day tendency, even among the medical profession, is to resort to artificial feeding for the flimsiest of reasons.

While everyone may not agree with all Professor Browne's statements, e.g. the use of castor oil as a laxative, even occasionally, by the pregnant woman, the book is one which can be recommended with confidence to all expectant mothers, and will not be out-of-place among the textbooks used by students both nursing and medical.

Its extremely moderate price brings it within the reach of all.

ADVANCES IN CLINICAL ENDOCRINOLOGY

Endocrinology in Clinical Practice. Edited by Gilbert S. Gordan, M.D., Ph.D. and H. Lisser, M.D. (Pp. 407 + xv, with illustrations. $10.50.) Chicago: The Year Book Publishers, Inc. 1953.

Contents: 1. General Principles. 2. The Thyroid Gland. 3. The Parathyroid Glands, Calcium Metabolism and Metabolic Bone Diseases. 4. The Pituitary Gland. 5. The Adrenals. 6. Carbohydrate Metabolism. 7. Obesity and Leanness. 8. The Gonads. 9. Infertility. 10. Endocrine Therapy of Neoplastic Diseases. Appendix. Index.

In the Preface to this most useful volume the editors Doctors Gordan and Lisser state: 'This is a clinical book, by clinicians, for clinicians.' This is indeed no overstatement. The contributors, 30 in number, are physicians of wide experience who are recognized experts in their respective fields, most of them on the staff of the University of California School of Medicine.

The theme of the contributions throughout is uniform, namely Recent Advances in Clinical Endocrinology, and they must be read as an adjunct to the more standard works on the subjects presented. The practising physician is presented with a digest of the material he needs for the diagnosis and treatment of endocrine disorders, and for the use of hormones in diseases which are not primarily endocrine in origin, with the accent on the purely clinical approach. The present tendency to order a barrage of expensive laboratory procedures is discouraged, especially in view of the prevalent attitude toward the high cost of medical care. The contributors stress throughout that the laboratory aids should only be enlisted when their tests may give definitive aid or provide corroborative evidence in doubtful cases.

The truly astonishing progress in the past few years in the elucidation of the physiology of the endocrine glands, their inter-relationships, and their impact on all branches of medicine, has lifted the veil from what was until quite recently a domain of medicine shrouded in theory, fantasy and obscurity. Furthermore the development of hormones, both natural and synthetic, has given the practising physician potent weapons in the fight against disease. The recent discovery of adrenocorticotrophin and cortisone has opened a new vista, and promises further revelations of the most profound and far-reaching importance.

This volume is beautifully presented and adequately illustrated. It obviously represents the work of a well co-ordinated and integrated school of thought, and can be recommended to all physicians as a 'Postgraduate Course in Clinical Endocrinology and Metabolic Diseases'.

CORRESPONDENCE : BRIEWERUBRIEK

DIVORCE AND OTHER FAMILY-RELATIONSHIP PROBLEMS

To the Editor: Marriage counselling and guidance are one of the manifold duties often demanded by his patient of the family practitioner. The high and rising divorce rate, particularly in the larger cities of this country has seriously disturbed social-welfare and other organizations. Dr. David Mace and his wife, who have been closely associated with the Marriage Guidance movement in England, have been invited to South Africa to assist in meeting this problem. One hopes that a result of their visit may be a fuller realization by doctors of the part they can play in this aspect of family health.

Professor Richard Tittmuss in an address to the British National Conference on Social Work in April this year discussed some interesting aspects of recent trends in marriage in England. Since 1911 the amount of marriage began to increase and has been steadily rising. Since 1939, for instance, the proportion of married women in the age-group 20–24 has risen by nearly 50%. In the last 20 years in the group 25–34 the proportion married among all women has risen from 67% to 82%.

These changes in the amount of marriage have been accompanied by another phenomenon—a trend towards earlier and more youthful marriage. Since 1911, for instance, the proportion of girls married in the age-group under 20 has risen by over 200%. As a result of these trends in the age at and amount of marriage, there are now far fewer unmarried men and women aged 15–45 than at any time in the history of English statistics of marriage.

The experiences of marriage and parenthood, therefore, are now happening to more people at an earlier age in their emotional and social development. Earlier marriage and longer marriage must entail more risks. Divorce, says Professor Tittmuss is not a cause of family breakdown; it is a symptom. A common belief is that most divorces occur within the first few years of married life. This is not true in England. Among women under the age of 35, the divorce rate is far higher after marriages have lasted from 10 to 20 years, than in the first 3 or 5 years of married life.

Are there similar trends in South Africa? For all those concerned with the social and mental as well as the physical aspects of the health of families this type of information is relevant.

It is also pertinent to consider whether the training of medical students equips them for dealing with behaviour-problems resulting from disturbed inter-personal relationships, of which divorce is but one symptom. These disturbed relationships can be, and often are, as severely incapacitating as disturbed anatomical or physiological relationships. If the function of the medical practitioner is to assist in maintaining the optimum health of those he cares for, he must gain experience in dealing with these types of difficulties as they occur in the home situation.

The instruction of medical undergraduates on these lines should not be confined exclusively to the hospital; they should be given opportunities for studying family and community health problems.

In addition to the curative role of the doctor in divorce and other family-relationship problems, the preventive and educational aspects need to be considered. Terman, summarizing the background factors found among happily-married and unhappily-married persons, stated that on the average the parents of happily-married couples had been more happy than those of unhappily-married couples. The childhood of the happily-married group had been happier, with less frequent reports of conflict with the parents, who had punished the children less severely and less frequently. The children were more attached to both parents in the happily-married group and their questions regarding sex were more frankly answered. It would appear, therefore, that the establishment and maintenance of healthy inter-parent and parent-child relationships exerts a beneficial and prophylactic effect when the children in their turn become parents. The family doctor is constantly being called on to deal with situations in which these relationships are often of primary importance.

By being trained to be fully aware of these opportunities, the doctor can more competently guide the members of the families he deals with to healthier ways of living together, and thus play his full and satisfying share in preventing family disease, of which divorce is a severe and late symptom.

Julia Chesler.

Institute of Family and Community Health,
Private Bag,
Merebank,
Natal.
4 November 1953.

GASTRO-OESOPHAGEAL REGURGITATION

To the Editor: With reference to the letters of Dr. N. A. Lawler[1] and Dr. N. D. McCreath[2] we felt that we should continue our investigation, paying attention to their criticisms of our technique. We have therefore examined an additional 100 patients. We considered that a condition which, according to Lawler and McCreath,[3] accounts for 'nearly 30% of cases of dyspepsia seen in an ordinary medical out-patient department', should be easily recognized in such a series. We have again not been able to confirm their original claims.

In view of their criticisms we have paid especial attention to:

(a) *History-taking.* We are aware that hospital records may not be adequate. Initially we used them merely to see whether the syndrome was sufficiently characteristic to be reflected in these records. Only when this proved not to be so did we interrogate each patient.

In the present series one of us (C.M.) personally interrogated each patient on the day of examination and without any knowledge of the radiological findings. The 100 patients include only those who had a history of dyspepsia and whose dyspeptic symptoms were still present. There was no other selection except that the patient's physical condition should be adequate to undergo the necessary manoeuvres for eliciting reflux.

(b) *Duration of Examination.* On two occasions the authors[1, 3] have not been more precise than to report that their examination lasted 'several minutes'; so on this occasion we have observed the patient for 2 minutes in each of the 2 positions. Those cases showing a peak of barium projecting from the cardia were examined for a longer period. In all other respects the technique was that followed by Lawler and McCreath.

(c) We enlisted the aid of 3 radiological colleagues on the staff (Dr. I. O. Faiman, Dr. A. D. Keet and Dr. D. Brink) in the examination of patients. They too have used the same technique.

(d) Among the positive cases of reflux we have been careful to include only those showing a 'free and persistent reflux to the cricoid cartilage', and those in whom oesophageal peristalsis was active.[2] Those with a mere trickle from the cardia into the lower oesophagus and those with a gross reflux but an inert oesophagus have been omitted.

Our findings in these series of 100 patients were as follows:

(A) There were 26 patients with dyspeptic story aggravated by posture in a 'typical' manner. Seven of these exhibited reflux, and 6 of these 7 had hiatus hernia.

(B) There were 4 patients with reflux but no typical history.

In the series there were 18 patients with a radiologically demonstrated gastric ulcer, 15 with duodenal ulcer, 4 with carcinoma of the stomach and 9 with other radiological abnormalities.

This series was not comparable to our original series[4] because of the elimination of patients without a dyspeptic history and those in whom the dyspeptic symptoms were in abeyance at the time of the examination. The incidence of gastro-oesophageal regurgitation was 11%—a figure comparable to that of Lawler and McCreath.[3] There was no difficulty in obtaining a history which would be regarded as suggestive according to criteria laid down by these authors. Such a history was present in 26 patients. Only 7 of these had demonstrable gastro-oesophageal regurgitation and 6 of the 7 had hiatus hernia.

We were especially interested in the 4 patients who had gastro-oesophageal regurgitation in the absence of typical symptoms. Repeated interrogation of these patients did not disclose a history that could even be regarded as suggestive.

We originally set out to determine whether there was a correlation between a history of postural pain and the radiological demonstration of gastro-oesophageal regurgitation. We are satisfied that many patients have a 'typical' story with no radiologically demonstrable abnormality. If there is one, it is likely to be hiatus hernia with gastro-oesophageal regurgitation rather than the latter alone. We do not deny the importance of reflux in these cases. We are impressed by the fact that it can be present in the absence of a 'typical' history. We are not convinced that reflux alone is a common cause of dyspepsia, second only in importance to duodenal ulcer.

L. Werbeloff.
C. Merskey.

Groote Schuur Hospital,
Observatory,
Cape.
13 November 1953.

REFERENCES

1. Lawler, N.A. (1953): S. Afr. Med. J., **27**, 867.
2. McCreath, N.D. (1953): S. Afr. Med. J., **27**, 943.
3. Lawler, N. A. and McCreath, N. D. (1951): Lancet, **2**, 369.
4. Werbeloff, L. and Merskey, C. (1953): S. Afr. Med. J., **27**, 739.

PIGMENTATION DISAPPEARED

To the Editor: A 22-year-old European girl, living at a Cape seaside resort, was distressed by a smudgy, light-brown pigmentation affecting the more prominent portions of her face (forehead, malar regions, tip of nose and naso-labial folds). This pigmentation had started at the age of 18 and had been much worse every summer. She had never worn hats. The rest of the skin exposed to the sun showed no patchy pigmentation.

Since the age of 18 she had been using a well-known brand of cosmetics. The manufacturers in answer to our queries informed us that these cosmetics contained oil of bergamot.

For the last 3 months the patient has been wearing a hat out of doors, protecting her face from actinic light and using cosmetics free from oil of bergamot. The pigmentation has disappeared.

Jean Walker.

Department of Dermatology,
University of Cape Town,
Medical School, Mowbray, C.P.
17 November 1953.

The Divisional Council of the Cape

VACANCIES FOR JUNIOR MEDICAL OFFICERS AT DR. A. J. STALS MEMORIAL SANATORIUM

Applications are invited from registered medical practitioners (male or female) for the undermentioned vacancies at the Dr. A. J. Stals Memorial Sanatorium (treatment of non-European females and children Tuberculosis patients) Westlake, Retreat:

Junior Medical Officers:

Commencing notch on the scale £624 × 36—£840 plus cost-of-living allowance plus an allowance of £192 per annum in lieu of board and lodging which is not available at the Sanatorium.

Applications must contain full details of qualifications and previous experience, marital state and whether bilingual, and should indicate the earliest date on which applicants could commence duty.

The successful applicant will be required to serve a probationary period of six months and on confirmation of appointment to become a member of the Council's Pension Scheme and of the South African Association of Municipal Employees. Medical fitness is therefore a condition of appointment.

Any further information required may be obtained upon enquiry direct to the Medical Officer of Health of this Council.

Applications must be addressed in writing to the undersigned to reach the Council's offices not later than Saturday, 5 December 1953.

Canvassing of Councillors or officials will prove a disqualification.

G. O. Owen
Secretary

6 Dorp Street
Cape Town
10 November 1953

(189)

Instructions to Authors

All authors are advised to consult *Medical Writing*, by Dr. M. Fishbein, formerly Editor of the *Journal of the American Medical Association*. The volume is obtainable from medical libraries in South Africa. It is published by the Blakiston Co., Philadelphia, U.S.A.

Papers submitted for publication in this *Journal* are accepted on condition that they have not been published elsewhere. The *Journal* Management reserves the copyright of all material published.

Considerable delay in the publication of papers is often due to the fact that they are poorly prepared. Publication will be expedited if the following specifications are complied with:—

1. All copy should be typewritten (double or preferably triple spaced) with wide margins.

2. Tables, references, graphs, illustrations and legends for illustrations should be clearly identified and *prepared on separate sheets*.

3. All photographs should be glossy prints unmounted, untrimmed and unmarked. Authors' suggestions for trimming, etc., are most suitably indicated on a duplicate print or diagram.

4. In no circumstances should original X-ray films be forwarded. Glossy prints must be submitted.

5. Line drawings should be on white board, arranged to conserve vertical space. All lettering in diagrams and graphs should be indicated clearly in soft lead pencil, preferably on a duplicate specimen or diagram in rough. In no circumstances should lettering be inked in or typewritten on the figure or the graph. Illustrations should not exceed 12 inches × 18 inches in size.

6. Figure numbers should be marked clearly on the back of each illustration, and in every case the top of the illustration should be indicated.

7. A limited but reasonable amount of illustrative and tabular matter is allowed free. Additional material of this sort may be allowed at cost, at the discretion of the Editor.

8. All references to the literature should be inserted in the text as a superior number and listed at the end of the article in numerical order.

9. References must conform to the following convention (journal titles being abbreviated according to the *World List of Scientific Periodicals*):—

White, J. and Brown, A. B. (1946): Arch. Clin. Med., **123**, 167.

Books should be cited as follows:—

Smith, J. (1946): *An Introduction to Medicine*, 2nd ed., p. 174. Cape Town: John Black, Ltd.

10. All numerals to be printed as figures (i.e. *not* spelt out) *For 'one' or 'I' always follow copy*. All numerals *always* to be spelt out in full at the beginning of a sentence.

11. Cubic centimetre *as* c.c.; Cubic millimetre *as* c.mm.; 7.11.46 *as* 7 November 1946; 2nd *as* second; 10/6 *as* 10s. 6d.; Per cent. *as* %; 1" *as* 1 inch; B.P. 140/80 *as* Blood pressure, 140/80 mm. Hg.

12. Each paper should conclude with a summary (of about 200 words) intelligible apart from reference to the main text of the article.

13*a*. Galley proofs will be forwarded to the author in good time before publication date.

13*b*. Corrections, other than typographical errors, will be charged to the author. It is therefore most important that the MS. be submitted in its *final form*.

14. *Reprints:* An order blank for reprints, together with a price list, will be sent to the author as soon as his article reaches page-proof stage.

15. All manuscripts and correspondence should be addressed to:—The Editor, *The South African Medical Journal*, P.O. Box 643, Cape Town.

Siekefonds van die Suid-Afrikaanse Spoorweë en Hawens

AANSTELLING VAN SPOORWEGDOKTER : SHANNON

Aansoeke word van geregistreerde mediese praktisyns ingewag vir aanstelling in die betrekking van spoorwegdokter, Shannon, en spoorwegtraiek tot by Rhenosterspruitbrug (insluitend), teen 'n salaris van £1,161 p.j., plus 'n vervoertoelae van £250 p.j., plus die gelde en toelaes wat in die Regulasies van die Siekefonds voorgeskryf word, en met die reg om privaat te praktiseer.

Die salaris is onderhewig aan wysiging in ooreenstemming met die sensus van lede wat op 1 April van elke jaar afgeneem moet word.

Die aanstelling geskied kragtens die regulasies van die Siekefonds, en opsegging van dienste is onderworpe aan vier maande kennisgewing deur een van beide partye.

Die suksesvolle applikant moet op Shannon woon, dienste aanvaar op 'n datum wat gereël sal word, en sy pligte ooreenkomstig die regulasies van die Siekefonds uitvoer.

Aansoeke moet die Distriksekretaris, Oranje-Vrystaatse Distriksiekefondsraad, Charlestraat 2, Bloemfontein, nie later nie as 22 Januarie 1954 bereik en applikante moet die volgende vermeld.

1. Volle naam.
2. Kwalifikasies (waar en wanneer verkry).
3. Ondervinding (waar en wanneer verkry en opgedoen).
4. Datum van geboorte.
5. Getroud of ongetroud.
6. Land van geboorte.
7. Of ten volle tweetalig.
8. Of Suid Afrikaanse burger.
9. Watter staatsbetrekking, indien enige, beklee word.

Werwing deur en ten behoewe van enige applikant stel so 'n applikant bloot aan diskwalifikasie.

Enige verdere besonderhede wat verlang word, kan op aanvraag van die Distriksekretaris by bovermelde adres verkry word.

P. J. Klem.
Hoofsekretaris.

Johannesburg
5 Desember 1953.

The South African Institute for Medical Research

Applications are invited from suitably qualified registered medical practitioners with adequate experience in laboratory work to take charge of new diagnostic branch laboratories of the above Institute. One of these laboratories is situated at Kroonstad, Orange Free State and others will be in the Johannesburg area.

Appointments will be made on the grades £1,000 × 100—£1,400, the commencing salary depending upon the qualifications of the applicant and the importance of the laboratory to which the appointment is made. Cost-of-living allowance at present £260 is attached to each post. These posts will be open to present members of the Institute Staff.

Further particulars can be obtained upon application to the Manager, The South African Institute for Medical Research, P.O. Box 1038, Johannesburg.

Medical Officer Required

Medical Officer required by the South West Africa Company, Limited to attend to European and Native employees in the Grootfontein District, S.W. Africa. House in Grootfontein available. Private practice allowed.

For full particulars apply to: The General Representative, P.O. Box 2, Grootfontein, S.W. Africa.

(This appointment has the approval of the Medical Association of South Africa.—*Associate Secretary, M.A.S.A.*)

The Medical Association of South Africa
Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP-AFDELING

KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177: P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(1387) Boland. Nucleus praktyk en goeie voorraad instrumente, ens. teen £400. Uitstekende vooruitsigte vir uitbreiding.
(1437) Prescribing practice in Transkei 90% native and therefore cash. Gross takings over £2,000 p.a. including contract of approximately £150 p.a. Little night or week-end work, definite scope for expansion. No surgery and little maternity done. Easy travelling distance from sea. Surgery for hire at £5 p.m. Owner going overseas and therefore prepared to sacrifice at £600 for quick sale.
(1459) KAAPSTAD—SUIDELIKE VOORSTAD. Vennootskapsaandeel in goedgevestigde algemene praktyk met uitstekende spoorwegaanstelling. Goeie toekoms vir Afrikaanse geneesheer met ondervinding. Gerieflike huis te huur. Verder kan gereël word. Volle besonderhede op aanvraag.
besonderhede op aanvraag.
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ASSISTENTE/PLAASVERVANGERS DRINGEND BENODIG

Vir stedelike en plattelandse gebiede vir DESEMBER en JANUARIE. Volle besonderhede op aanvraag.

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(1476) Cape Town. Waiting room and examination room available on long lease in St. George's Street building. (Quote also 1422.)

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(1508) (a) One Cambridge Portable Electrocardiograph in excellent condition; (b) One portable pneumothorax refill apparatus, bottle type.

PRAKTYK ONMIDDELIK TE KOOP AANGEBIED

(1513) KAAPPROVINSIE. Geleentheid om UITSTEKENDE PRAKTYK in hospitaaldorp te bekom TEEN GERINGE PREMIE. Ontvangste ongeveer £5,000 p.j. Belangstellende kan indien verlang moontlik eers as plaasvervanger ageer. Volle besonderhede op aanvraag.

* * * *

DURBAN

112 Medical Centre, Field Street. Telephone 2-4049

PRACTICES FOR SALE : PRAKTYKE TE KOOP

(PD23) Natal. Prescribing practice particularly suitable for a woman doctor interested in obstetrics and gynaecology. Total gross receipts for 1950, £1,570; 1951, £1,595; 1952, (6 months), £1,340; 1953 (3 months), £382. Premium £1,250, includes furniture, fittings, instruments, drugs and existing book debts.
(PD24) Natal South Coast. Practice suitable for doctor who does not want full-time work. £250 for drugs, dressings, instruments, etc. No charge for goodwill. Small house on ¼ morgen, £1,600. Immediate occupation.

PARTNER REQUIRED

(PDX) Durban. General practitioner offers 45% partnership on 18 months' purchase. Applicants should be experienced and be able to put down a certain amount of capital. Share worth at least £2,000.

LOCUMS REQUIRED

Harding. Locum from about middle November until 6 December. £3 3s. per day, all found. R.M.O. and D.S. appointments.

Dannhauser. Locum from 11 November for month or longer. £2 12s. 6d. per day, all found. R.M.O. and Mine appointments.
Ladysmith. Locum from 7 December for four weeks. £3 3s. per day, all found. Must be bilingual and possess own car. General practice with R.M.O. appointment.
Vryheid. Locum from latter part of December until end of January. £3 3s. per day, all found. Must have own car. Mixed type of practice. £10 p.m. car allowance. Reasonable petrol allowance to and from Vryheid.

* * * *

JOHANNESBURG

Medical House, 5 Esselen Street, Telephone 44-9134-5, 44-0817
Mediese Huis, Esselenstraat 5. Telefone 44-9134-5, 44-0817

PRACTICES AND PARTNERSHIPS FOR SALE
PRAKTYKE EN VENNOOTSKAPPE TE KOOP

(Pr/S95) O.V.S. praktyk met twee aanstellings. Inkomste oorskry £2,500 per jaar, waarvan 'n groot persentasie kontant inkomste is. Premie van £1,500 sluit meubels, instrumente en medisyne in en kan afbetaal word. Uitstekende geleentheid vir beginner.
(Pr/S97) Very progressive Transvaal hospital town. This is an old established practice, with an average gross income of £9,000 to £11,000 p.a. Partnership share offered at £4,500 to an experienced man or outright sale of practice at £6,000. Please apply for full details.
(P/O24) RANDSE HOSPITAALDORP. Vennootskapsaandeel word aangebied in goedgevestigde algemene praktyk teen £1,500 of die regstreekse verkoop van die praktyk teen £3,000. In beide gevalle kan terme gereel word.
(P/O28) Rhodesian Hospital town. A third partner is required in a partnership practice. Preferably man with a leaning towards medicine rather than surgery, experienced in anaesthetics and of British extraction.

ASSISTANTS/LOCUMS REQUIRED
ASSISTENTE/PLAASVERVANGERS VERLANG

(L/V440) O.V.S. hospitaaldorp. Plaasvervanger vir 14 Desember tot 14 Januarie. Moet eie kar gebruik. Terme: £3 3s. per dag, en alles vry.
(L/V445) Plaasvervanger vir Vrystaatse praktyk vanaf middel Desember tot middel Januarie *of* Januariemaand. Salaris £2 12s. 6d. per dag, alles vry en 1s. per myl reistoelae.
(L/V462) Vrystaat. Plaasvervanger vanaf 7 Desember vir drie weke of een maand. £2 12s. 6d. per dag, alles vry en 'n kar word verskaf.
(L/V473) Johannesburg. Locum for January. Salary £3 3s. per day, plus car allowance.
(L/V477) O.F.S. Locum as from 15 December till 15 January. Salary £100 p.m. and all found. Preferably newly qualified man.
(L/V479) Near Johannesburg. Locum for January or to start last week in December. Terms: £3 3s. per day, plus all found and a car provided.
(L/V481) Tvl. near Johannesburg. Locum as from 4 January till 25 January. Salary £20 per week, all found plus £10 car allowance.

Urgently Required

For the Maitland Cottage Homes for Cripple Children:
(1) Suction Apparatus for Theatre.
(2) Boyles Gas and Oxygen Machine.
New or used apparatus in good condition.
Write to Agency Manager, P.O. Box 643, Cape Town or telephone 2-6177, ext. 4.

Partnership Wanted

Partnership wanted in suburban medical practice in Cape Town, Johannesburg or Pretoria. Gentile, bilingual practitioner with 13 years experience. Nett share must be at least £2,000 per annum. Can take over any time after March 1954. Write 'A.T.G.', P.O. Box 643, Cape Town.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

CAPE TOWN FREE DISPENSARY

Applications are invited for appointment to the following posts in the Cape Town Free Dispensary:—

1. Junior (non-resident) Medical Officer (Intern Grade) on salary of £240 per annum, plus allowances in lieu of board, lodging, and laundry. Candidates writing the final M.B., Ch.B., examination can submit applications for the post of Intern before the result of the examination is known. The successful candidate for the post will be required to enter into contract with the Provincial Administration, following registration with the South African Medical and Dental Council, to which body application has been made for renewal of recognition of this Dispensary as an approved institution for internship.
2. Pharmacist, Grade A, on salary scale £500 x 25 — 600.
3. Woman Clerk, Grade B, on salary scale £275 x 15 — 400.
4. Three (3) non-European Nursing Sisters to fill District Nursing posts in Cape Town or vicinity, on salary scale £280 x 20 — 400. Midwifery qualifications will be a recommendation.

In addition to the salary scales described, a temporary cost-of-living allowance at current statutory rates will be payable.

Applications should be submitted in duplicate, on the prescribed form (Staff 23), which is obtainable from the Director of Hospital Services, P.O. Box 2060, Cape Town, or any Medical Superintendent, or Secretary of School Board in Cape Province. Completed forms should reach the Medical Superintendent, Cape Town Free Dispensary and Associated Services, Buitenkant Street, Cape Town, on or before 5 December 1953.

Additional Part-time General Surgeon

Applications are invited for the position of additional part-time general surgeon. For full particulars please apply to the undersigned. O. W. Johns, General Secretary Mines Benefit Society, P.O. Box 8603, Johannesburg.

(Before applying practitioners should communicate with the Hon. Secretary, Southern Transvaal Branch, M.A.S.A., 5 Esselen Street, Johannesburg.—*Associate Secretary, M.A.S.A.*)

Practice for Sale

Unopposed rapidly expanding practice, Retreat area. In heart of new industrial and business area with large European and non-European population. Write 'A.T.K.', P.O. Box 643, Cape Town.

Provincial Administration of the Cape of Good Hope

GREY HOSPITAL, KING WILLIAM'S TOWN

VACANCIES FOR HONORARY MEDICAL OFFICERS

Applications are invited from registered Medical Practitioners for appointment to the undermentioned posts at Grey Hospital, King William's Town.

Designation	*No of Posts*
Honorary Medical Practitioner.	8

The appointment, conditions of service and remuneration attached to the posts shall be subject to the provisions of the regulations promulgated under Provincial Notice No. 553 of 1953.

Applications must be made on the prescribed form, which is obtainable from the Medical Superintendent, Grey Hospital, King William's Town, to whom all completed forms must be addressed.

The closing date for receipt of applications will be 3 December 1953.

Provinsiale Administrasie van die Kaap die Goeie Hoop

HOSPITAALDEPARTEMENT

KAAPSTADSE VRYE APTEEK

Aansoeke word ingewag vir aanstelling tot die volgende poste by die Kaapstadse Vrye Apteek:—

1. Junior (nie inwonend) mediese beampte teen 'n salaris van £240 p.j., plus toelae in plaas van losies, inwoning en wasgoed. Kandidate wat die finale M.B., Ch.B.-eksamen skryf, kan hulle aansoeke instuur voordat die uitslag van die eksamen bekend is. Van geslaagde kandidaat word verwag om 'n kontrak met die Provinsiale Administrasie aan te gaan. Die kandidaat moet by die Suid-Afrikaanse Mediese Raad geregistreer wees, voordat diens kan aanvaar word. 'n Aansoek is reeds gerig aan die Suid-Afrikaanse Mediese Raad om hernuwing van erkenning dat die Vrye Apteek 'n goedgekeurde Instituut vir internskap is.
2. Apteker, Graad A, salaris volgens die skaal £500 x 25 — 600.
3. Vrouelike Klerk, Graad B, met salarisskaal £275 x 25 — 400.
4. Aansoeke word ook ingewag van nie-blanke verpleegsters, vir die addisionele Distriks verplegingsposte in Kaapstad en omgewing. Die salaris is volgens die skaal £280 x 20 — 400. Opleiding in kraamwerk sal 'n aanbeveling wees.

Benewens die salarisskaal soos aangedui is 'n lewenskostetoelae betaalbaar, teen bedrae volgens wet.

Aansoeke moet gedoen word in duplo, op die voorskrewe vorm, Staf 23, wat verkrybaar is by die Direkteur van Hospitaaldienste, Posbus 2060, Kaapstad, of by die Mediese Superintendent van enige Provinsiale Hospitaal, of by die Sekretaris van enige Skoolraad in die Kaap Provinsie.

Die voltooide aansoek vorms moet gerig word aan die Mediese Superintendent, Vrye Apteek, Buitenkantstraat, Kaapstad. Die sluitingsdatum vir ontvangs van die aansoeke is 5 Desember 1953.

Partnership or Assistantship Required

Experienced F.R.C.S., bilingual wishes to join established surgeon as partner or assistant or to join a general practice with opportunity to do surgery. Write 'A. T. I.', P.O. Box 643, Cape Town.

Practice For Sale

Well established practice, Eastern Cape—Border area. Gross takings £4,000 p.a. Four appointments £150 per month. Beautiful house and surgery. Write to 'A.T.L.', P.O. Box 643, Cape Town.

Provinsiale Administrasie van die Kaap die Goeie Hoop

GREY-HOSPITAAL, KING WILLIAM'S TOWN

VAKATURE VIR ERE-MEDIESE BEAMPTES

Aansoeke word ingewag van geregistreerde geneeshere vir aanstelling in die volgende poste by die Grey-Hospitaal, King William's Town.

Benoeming	*Getal poste*
Ere-geneesheer	8

Die aanstelling, diensvoorwaardes en besoldiging aan bogenoemde poste verbonde, is onderworpe aan die regulasies afgekondig by Provinsiale Kennisgewing No. 553 van 1953.

Aansoeke moet gedoen word op die voorgeskrewe vorm, wat verkrybaar is by die Mediese Superintendent, Grey-Hospitaal, King William's Town, aan wie alle voltooide vorms gerig moet word.

Die sluitings datum vir die ontvangs van aansoeke is 3 Desember 1953.

Transvaal Provincial Administration

VACANCIES: TRANSVAAL PUBLIC HOSPITALS

Applications are invited from suitably qualified candidates for the undermentioned posts at Public Hospitals in the Transvaal.

Applications should be addressed to the Medical Superintendents of the undermentioned Hospitals concerned and should contain full particulars as to the age, professional and academic and language qualifications, experience and conjugal status of the applicant and should further indicate the earliest date upon which duties can be assumed. Copies, only, of recent testimonials to be attached.

Cost-of-living allowance payable at present to full-time employees:—

Salary	*Cost-of-living Allowance. Married*	*Single*
Over £350 per annum	£320 per annum	£100 per annum

Full-time employees receive in addition to their salaries and cost-of-living allowance, the following privileges:

Leave and rail concession.

Successful candidates will be required to submit satisfactory certificates as also to submit to a medical examination at the hospital concerned.

Application forms are obtainable from any Transvaal Provincial Hospital or the Provincial Secretary, Hospital Services Branch, P.O. Box 2060, Pretoria.

The closing date of applications for undermentioned posts will be 7 December 1953.

Hospital	*Post*	*Emoluments*	*Remarks*
Warmbaths	Medical Officer-in-Charge (1)	£1,000 x 50—1,200 per annum	Registered medical practitioner. Administrative duties. Plus £180 per annum house allowance.
Edenvale, P.O. Raedene	Physician (1)	£1,800 per annum	Registered medical practitioner. Must be suitably qualified through training and experience.
Klerksdorp	Junior Radiologist (1)	£1,800 per annum	Registered medical practitioner. D.M.R.: To serve the Western Transvaal.
Germiston	Casualty Officer (1)	£620—780—820—860	Registered medical practitioner. Must be qualified for at least two years.
Krugersdorp	Clinical Assistant (Department of Medicine) (1)	£620—780—820—860	Registered medical practitioner.

(43418)

Assistent Benodig

Assistent benodig vir plattelandse vennootskap. Uitstekende ondervinding vir jong man deur Distriksgeneesheerspos en aanstelling in plaaslike hospitaal. Dienste te aanvaar so spoedig moontlik, verkieslik 1 Desember 1953. Verdere besonderhede .A.T.J.', Posbus 643, Kaapstad.

Intern Wanted

For Mission Hospital in Transkei (on Medical Council list) providing all-round experience, including X-ray work. Apply Medical Superintendent, Nessie Knight Hospital, Sulenkama, Qumbu, C.P.

Praktyk te Koop

Enigste geneesheer op dorp met hospitaal. Brute inkomste £4,800 p.j. Distriksgeneesheerskap ± £800 p.j. werd en spoorwegaanstelling £112 p.j. plus voordele. Premie £1,000. Terme kan gereël word. Eienaar wil weens gesondheid verander van praktyk. Skrywe aan .A.T.H.', Posbus 643, Kaapstad.

South African Railways and Harbours Sick Fund

APPOINTMENT OF SALARIED ANAESTHETIST : KIMBERLEY

Applications are invited from anaesthetists for appointment to the position of Salaried Anaesthetist, Kimberley, at a salary of £796 per annum, plus the fees and allowances prescribed by the Regulations of the Fund, and with the right of private practice.

The duties of administering anaesthetics to Sick Fund beneficiaries resident in the Cape Northern District for operations performed by the Specialists and Railway Medical Officers in Kimberley.

The salary will be subject to adjustment in accordance with the census of members to be taken on 1 April of each year.

The appointment will be made in terms of the Regulations of the Fund, and will be subject to termination on four months' notice being given by either side.

The successful applicant will be required to reside at Kimberley, take up the appointment on a date to be arranged, and to carry out his duties in accordance with the Regulations of the Fund.

Applications should reach the District Secretary, District Sick Fund Board, Florence Road, Kimberley, not later than 19 December 1953, and should state.

1. Full name.
2. Qualifications (when and where obtained).
3. Experience (when and where obtained).
4. Date of birth.
5. Country of birth.
6. Whether married or single.
7. Whether fully bilingual.
8. Whether South African citizen.
9. What Government appointment, if any, is held.

Canvassing by or on behalf of any applicant is liable to disqualify such applicant.

Particulars of the area covered by the appointment and any others particulars may be obtained from the District Secretary at the above address, on application.

P. J. Klem
General Secretary.

Johannesburg.
28 November 1953.

(Before submitting applications for this appointment, practitioners should communicate with the Hon. Secretary, Griqualand West Branch, (M.A.S.A.), G.W. Board of Executors Building, Stockdale Street, Kimberley—Associate Secretary, M.A.S.A.)

City of Port Elizabeth

VACANCY

TWO MEDICAL PRACTITIONERS (INTERNSHIP) ELIZABETH DONKIN HOSPITAL FOR INFECTIOUS DISEASES

Applications are invited from male or female medical practitioners for the abovementioned posts at a salary of £240 per annum plus cost-of-living allowance and free board and lodging.

Applicants must apply immediately to the undersigned and duties to commence on or before 1 January 1954.

Municipal Notice No. 367, 12 November 1953. (0417/070).

G. H. Brewer,
Town Clerk.

Part-Time Medical Officer

Part-time services of medical practitioner required for factory personnel. Remuneration in keeping with the regulations of the Medical Association. Apply in first instance to P.O. Box 2461, Durban.

(This appointment has the approval of the Medical Association of South Africa—*Associate Secretary, M.A.S.A.*)

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